DJ-X7T/E
Service Manual

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ALINCO, INC.

SPECIFICATIONS

General

Receiving range	E : 0.1 - 1299.9975 MHz T : 0.1 - 823.9975 MHz 850.000 - 868.9975 MHz 895.000 - 1299.9975 MHz
Modulation mode	FM,WFM,AM
Ant.impedance	50 ohm (SMA)
Supply voltage	DC 3.7V-600mAh (Internal battery) DC 3.7V - 6V (external regulated source)
Ground	Negative ground
Current consumption	reception:approx.90mA Battery save(1:4)approx.22mA
Temperature range	-10 - +60℃ (+14 - +140 F °)
Frequency stability	+3～-7ppm (-10 - +60℃) (+14 - +140 F °)
Dimensions	58(W) x96 (H) x14.5 (D) mm (Projections exclusive)
Weight	Approx. 103g (EBP58N and SMA ANTENNA inclusive)

Receiver

System	Triple-conversion superheterodyne (NFM,AM) Double-conversion super heterodyne (WFM)		
First IF	243.95 MHz (NFM,AM,WFM)		
Second IF	39.15 MHz (NFM,AM) ,10.7MHz (WFM)		
Third IF	450 kHz (NFM,AM)		
Selectivity	AM/FM -6dB/12 kHz or more , -60dB/35kHz or less WFM -6dB/130kHz or more, -60dB/300kHz or more		
Sensitivity	FM : 30～470MHz	-12dBu	12dB SINAD
	470MHz or higher	-6dBu	12dB SINAD
	WFM : 76～470MHz	–2dBu	12dB SINAD
	470MHz or higher	9dBu	12dB SINAD
	AM : 0.1～50MHz	0dBu	10dB S/N
	50MHz or higher	-8dBu	10dB S/N
Audio output power	more than 100mW (8Ω)		
Spurious response	60dB or over		

! NOTE: All specifications are subject to change without notice or obligation.

CIRCUIT DESCRIPTION

1) Receiver System

1. Receiver system :

Triple Superheterodyne Conversion (NFM,AM)
Double Superheterodyne Conversion (WFM)
1st IF :243.95MHz
2nd IF :39.15MHz (NFM,AM)
2nd IF :10.7MHz (WFM)
3rd IF :450kHz (NFM,AM)

2. Front end

[0.100-29.995MHz]
The incoming signal from the bar antenna goes to band switch circuitry (Q302, D306).
The bar antenna covers 2 bands, SW and MW, which can be selected with a switching circuitry Q302 and D306.
The signal goes to the first RF amplifier (Q301) and passes through a low-pass filter, followed by the second RF amplifier (IC307). Then the signal goes to the common mixer (IC304).

[30-136.995MHz]
The incoming signal from the antenna passes through a band-pass filter and goes to the first amplifier (Q318). Then the signal goes to the common mixer (IC304).

[137-222.995MHz]
The incoming signal from the antenna passes through a band-pass filter and goes to the first amplifier (Q316). Then the signal goes to the common mixer (IC304).

[223-367.995MHz]
The incoming signal from the antenna passes through a band-pass filter and goes to the first amplifier (IC307). Then the signal goes to the common mixer (IC304).

[368-469.995MHz]
The incoming signal from the antenna passes through a band-pass filter and goes to the first amplifier (Q322). Then the signal goes to the common mixer (IC304).

[470-849.995MHz]
The incoming signal from the antenna passes through a band-pass filter and goes to the first amplifier (IC307). Then the signal goes to the common mixer (IC304).
Note that the cellular-phone band block system is mentioned on the separated sheet for the T-version.

[850-1299.995MHz]
The incoming signal from the antenna passes through a band-pass filter and goes to the first amplifier (IC307). Then the signal is goes to the common mixer (IC304).

3. Mixer

[The 1st Mixer]
The 1st local oscillator signal for the 1st mixer is supplied from the VCO.
The signal heterodowned to the 1st IF of 243.95MHz by the mixer passes through a SAW filter (FL302) and unwanted signal components are eliminated.

[The 2nd Mixer]
The 2nd local oscillator signal for the 2nd mixer is supplied from the VCO.
In FM/AM mode, the signal heterodowned to the 2nd IF of 39.15MHz by the mixer passes through a crystal filter (FL301) and unwanted signal components are eliminated.
The resulting signal is amplified by the 2nd IF amplifier Q317 and goes to the IF IC (IC309).

In WFM mode, the signal heterodowned to the 2nd IF of 10.7MHz by the mixer passes through a ceramic filter (FL303) and unwanted signal components are eliminated.
The resulting signal is amplified by the IF amplifier Q319 and goes to the IF IC (IC309).

[The 3rd Mixer]
The 3rd local oscillator signal for the 3rd mixer is 38.7MHz signal that is produced by multiplying the 12.9MHz (X301) oscillator output with a multiplier (Q314).

4. IF

[FM]
In FM mode, the signal passes through an external ceramic filter (FL304) and FM/AM switch (D342), and goes back to the IF IC (IC309).
The signal is amplified by the internal IF amplifier is demodulated by the quadrature FM demodulation circuit using a coil (L345) and output as an AF signal.

[AM]
In AM mode, the signal passes through an external ceramic filter (FL304) and goes back to the IF IC (IC309).
The 2nd IF amplifier Q317 is controlled by reverse AGC at AGC amplifier Q325 to get better audio output even though the input is changed, and the gain is controlled.

[WFM]
In WFM mode, the signal of 10.7MHz passes through FM/AM switch (D342) and goes to the IF IC (IC309).
The signal is amplified by the internal IF amplifier is demodulated by the quadrature FM demodulation circuit using a coil (L342) and output as an AF signal.

5. Squelch

The AF signal got from pin 12 of IF IC (IC309) is fed to pin 19 of IF IC (IC309). The input signal is output from pin 21 of IF IC (IC309) passing through the noise filter amplifier and rectifier circuits inside of IF IC (IC309). The rectified signal is added to the A/D port of the microcomputer (IC308). Judging the signal, the microcomputer controls ON/OFF of the audio output.

6. Audio

[FM/AM/WFM]
The AF signal goes to the switching IC (IC310). The switched signal passes through active filter (Q340) and goes to the electronic volume (IC314, Q330).
The adjusted signal goes to the AUDIO IC (IC313) and drives a speaker, etc.

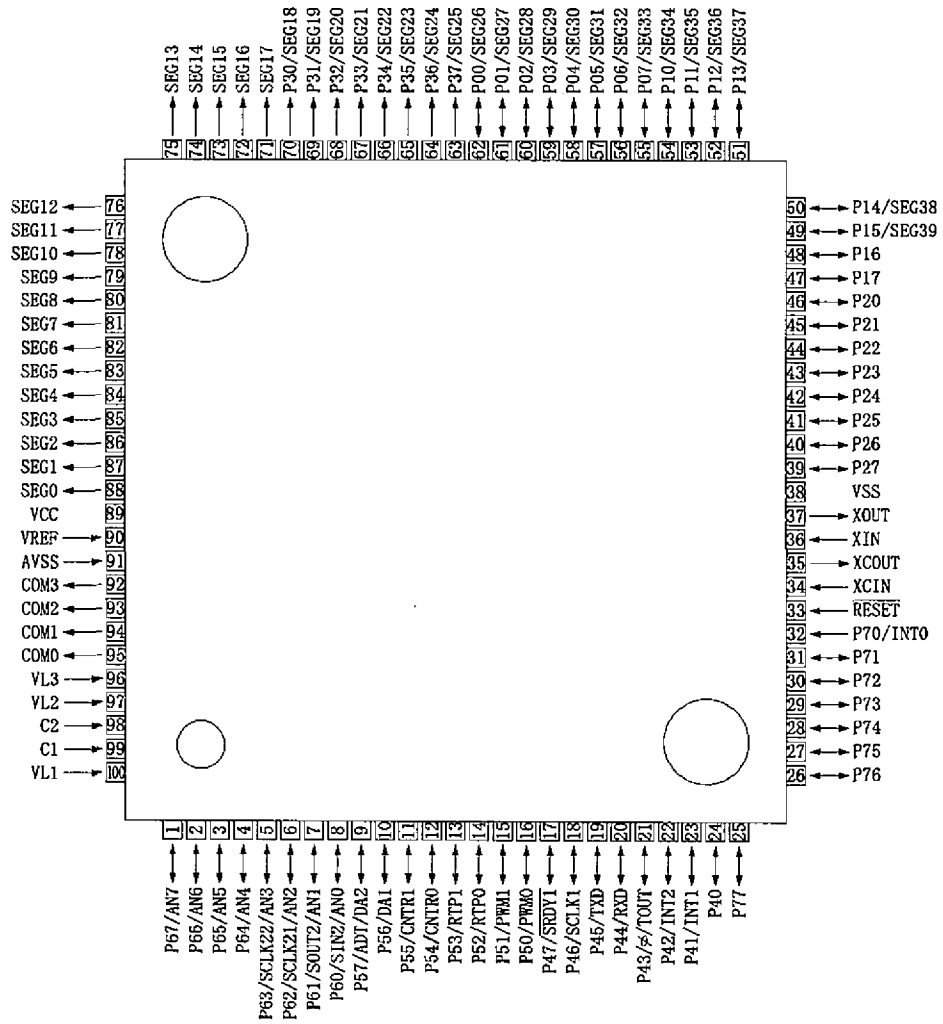
7. VCO

[The 1st Local]
The VCO for the 1st local consists of the Colpitts oscillator. D310, D311 and L302 determine the frequency, and they are oscillated at the transistor Q303. The oscillated signal passes through the butter amplifiers (Q304, Q306) and goes to the PLL-IC (IC302).
[The 2nd Local]
The VCO for the 1st local consists of the Colpitts oscillator. D321, D324 and L311 determine the frequency, and they are oscillated at the transistor Q313. The oscillated signal passes through the butter amplifier (Q315) and goes to the PLL-IC (IC302).

8. PLL

PLL-IC (IC302) is used to control the oscillation frequency of VCO. The microcomputer (IC308) sends the signal with serial data to PLL-IC (IC302). The 12.9MHz reference frequency of PLL-IC (IC302) oscillates the crystal oscillator X301 at the external circuit (IC303).

2) M3826AMFA (E:XA1088, T:XA1086)
CPU
Terminal Connection
(TOP VIEW)

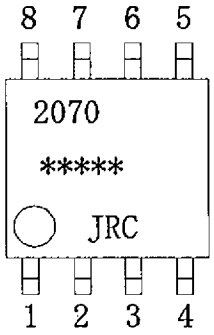


No.	Terminal	Signal	I/O	Description
1	P67/AN7	BCHK	I	Battery detection input
2	P66/AN6	PCNT	O	Battery detection SW output
3	P65/AN5	BUG	O	Bugging SW output
4	P64/AN4	SMT	I	S-meter input
5	P63/SCLK22/AN3	SQL	I	Noise level input for squelch
6	P62/SCLK21/AN2	SCT	O	Secret signal output
7	P61/SOUT2/AN1	TIN	I	Tone input
8	P60/SIN2/AN0	BAT	I	Battery charge voltage input
9	P57/ADT/DA2	VOLC	O	Volume control SW
10	P56/DA1	CHG	O	Charge SW output
11	P55/CNTR1	AMC	O	AM SW
12	P54/CNTR0	PS	O	PLL IC power save control
13	P53/RTP1	STB1	I	Strobe for PLL
14	P52/RTP0	DATA/UL	I/O	Serial data output/Unlock input
15	P51/PWM1	CLK	O	Serial clock output
16	P50/PWM0	STB2	O	Strobe for electronic volume
17	P47/SRDY1	AFS	O	AF SW
18	P46/SCLK1	SD	O	RX-LED SW
19	P45/TXD	CTX	O	Clone data transmission output
20	P44/RXD	CRX	I	Clone data reception input
21	P43/φ/TOUT	BEEP	O	Beep tone output
22	P42/INT2	DET	I	DC-JACK detection input
23	P41/INT1	RE2	I	Rotary encoder input 2
24	P40	RESW	I	Rotary encoder push SW input
25	P77	RE1	I	Rotary encoder input 1
26	P76	BARSW	O	MW/SW antenna SW
27	P75	BARC	O	Bar antenna SW
28	P74	DBC	O	Doubler SW
29	P73	R3C	O	RX common power SW
30	P72	SDA	I/O	Serial data I/O for EEPROM
31	P71	SCL	O	Serial clock output for EEPROM
32	P70/INT0	BU	I	Back up signal detection input
33	RESET	RST	I	Reset input
34	XCIN	NC	—	—
35	XCOUT	NC	—	—
36	XIN	XIN	I	Clock input
37	XOUT	XOUT	O	Clock output
38	VSS	VSS	—	CPU GND
39	P27	LUB	I	Key input
40	P26	LMB	I	Key input
41	P25	LDB	I	Key input
42	P24	RUB	I	Key input
43	P23	RDB	I	Key input
44	P22	MONI	I	Key input
45	P21	FUNC	I	Key input
46	P20	LMPC	O	Backlight SW
47	P17	TSW	O	Tone SQL function SW
48	P16	NC	—	—
49	P15/SEG39	ATON	O	ATT on
50	P14/SEG38	EAR	O	EAR phone antenna SW

No.	Terminal	Signal	I/O	Description
51	P13/SEG37	ATOF	O	ATT OFF
52	P12/SEG36	W/NC	O	WFM/NFM SW
53	P11/SEG35	AFPC	O	AF power control
54	P10/SEG34	SCC	O	Secret function SW
55	P07/SEG33	BP2C	O	Band 2 SW
56	P06/SEG32	BP3C	O	Band 3 SW
57	P05/SEG31	BD5C	O	Band 5 SW
58	P04/SEG30	BD6C	O	Band 6 SW
59	P03/SEG29	BD1C	O	Band 1 SW
60	P02/SEG28	BD4C	O	Band 4 SW
61	P01/SEG27	BD7C	O	Band 7 SW
62	P00/SEG26	C3C	O	Common power SW
63	P37/SEG25	SEG25	O	LCD segment signal
64	P36/SEG24	SEG24	O	LCD segment signal
65	P35/SEG23	SEG23	O	LCD segment signal
66	P34/SEG22	SEG22	O	LCD segment signal
67	P33/SEG21	SEG21	O	LCD segment signal
68	P32/SEG20	SEG20	O	LCD segment signal
69	P31/SEG19	SEG19	O	LCD segment signal
70	P30/SEG18	SEG18	O	LCD segment signal
71	SEG17	SEG17	O	LCD segment signal
72	SEG16	SEG16	O	LCD segment signal
73	SEG15	SEG15	O	LCD segment signal
74	SEG14	SEG14	O	LCD segment signal
75	SEG13	SEG13	O	LCD segment signal
76	SEG12	SEG12	O	LCD segment signal
77	SEG11	SEG11	O	LCD segment signal
78	SEG10	SEG10	O	LCD segment signal
79	SEG9	SEG09	O	LCD segment signal
80	SEG8	SEG8	O	LCD segment signal
81	SEG7	SEG7	O	LCD segment signal
82	SEG6	SEG6	O	LCD segment signal
83	SEG5	SEG5	O	LCD segment signal
84	SEG4	SEG4	O	LCD segment signal
85	SEG3	SEG3	O	LCD segment signal
86	SEG2	SEG2	O	LCD segment signal
87	SEG1	SEG1	O	LCD segment signal
88	SEG0	SEG0	O	LCD segment signal
89	VCC	VDD	—	CPU power supply
90	VREF	VDD	—	AD converter power supply
91	AVSS	VDD	—	AD converter GND
92	COM3	COM3	O	LCD COM3 output
93	COM2	COM2	O	LCD COM2 output
94	COM1	COM1	O	LCD COM1 output
95	COM0	COM0	O	LCD COM0 output
96	VL3	VL3	—	LCD power supply
97	VL2	VL2	—	LCD power supply
98	C2	NC	—	—
99	C1	NC	—	—
100	VL1	VL1	—	LCD power supply

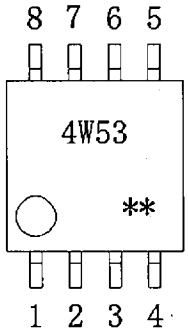
SEMICONDUCTOR DATA

1) NJM2070M (XA0210) Audio Power Amplifier



1. NC
2. + INPUT
3. - INPUT
4. GND
5. GND
6. OUTPUT
7. V+
8. NC

2) TV4W53FU (XA0348) Analog Multiplexer/De-multiplexer

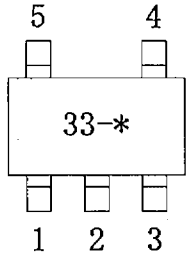


1. COMMON
2. INH
3. VEE
4. VSS
5. A
6. ch1
7. ch0
8. VDD

Contorol input		On channel
INH	A	
L	L	ch0
L	H	ch1
H	*	NONE

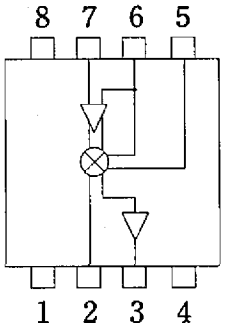
* Don't care

3) XC62HR3302MR (XA0519) 3.3V Voltage Regulator



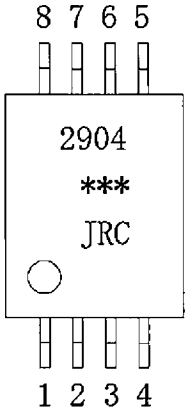
1. NC
2. VIN
3. CE (Active high)
4. VSS
5. VOUT

4) NJM2594V (XA0995) Double Balanced Modulation / Demodulation



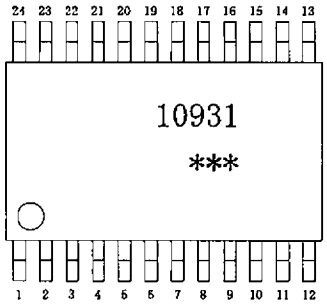
1. V+
2. Output 1
3. Output 2
4. GND
5. Signal Input
6. Bypass
7. Carrier Input
8. NC

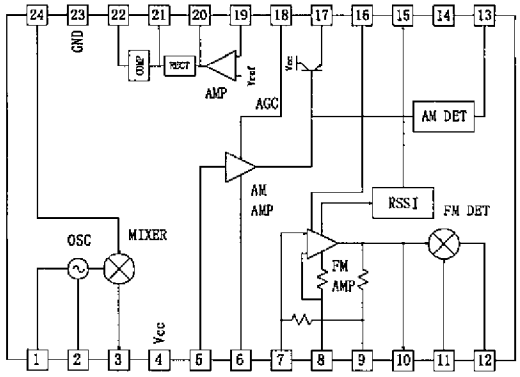
5) NJM2901V (XA0573) Dual Operational Amplifires



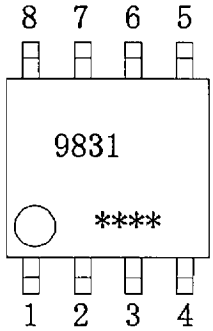
1. Output 1
2. Inverting Input 1
3. Non-inverting Input 1
4. GND
5. Non-inverting Input 2
6. Inverting Input 2
7. Output 2
8. V+

6) TK10931V (XA0666) Narrow Band AM/FM IF IC



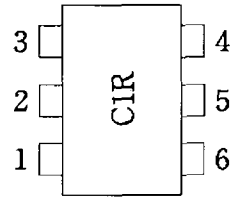


7) BU9831F (XA0882) Non-volatile Electronic Potentionmeter



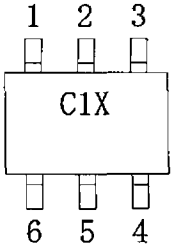
1. CS
2. SK
3. DIO
4. GND
5. VL
6. VW
7. VH
8. Vcc

8) UPC2746TB (XA0985) Silicon MMIC Wideband Amplifier



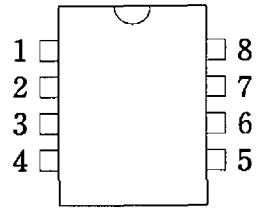
1. Input
2. GND
3. GND
4. Output
5. GND
6. Vcc

9) uPC2757TB (XA0953) MMIC 1st Frequency Down-converter



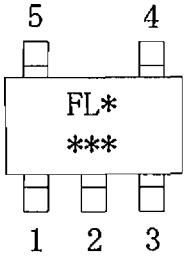
1. RF INPUT
2. GND
3. LO INPUT
4. PS
5. Vcc
6. IF OUTPUT

10) AT24C256-10TU-2.7 (XA1034) Two-wire Serial EEPROMs



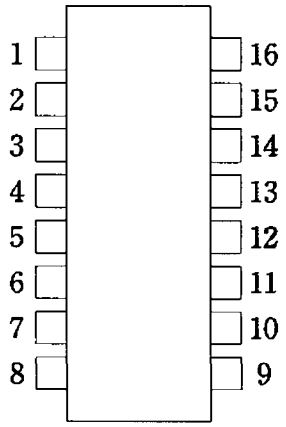
1. Address Input 1
2. Address Input 2
3. NC
4. GND
5. Serial Data
6. Serial Clock Input
7. Write Protect
8. VCC

11) BD4930FVE (XA1009) 3.0V Voltage Detector



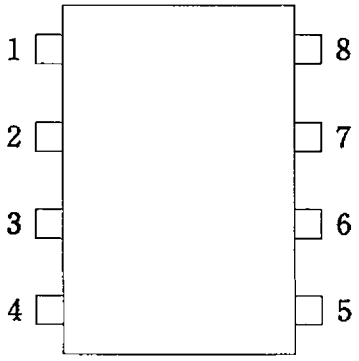
1. VOUT
2. GND (Substrate)
3. N.C.
4. GND
5. VDD

12) MB15F07SL (XA1033) Pull Frequency Synthezir



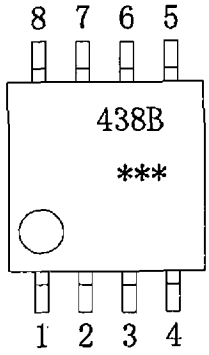
1. GND 2
2. OSC IN
3. GND 1
4. fin 1
5. VCC
6. LD/fout
7. PS 1
8. DO 1
9. DO 2
10. PS 2
11. Xfin 2
12. VCC 2
13. fin 2
14. LE
15. Data
16. Clock

13) TK11850L (XA0950) Step-up Dc-dc Converter



1. Power Supply Voltage Input
2. Inductor Current Limit
3. External Inductor
4. Cathode Terminal of am Built-in Schottky Diode
5. Feedback Voltage
6. Ground
7. Timing Capacitor
8. Enable (ON/OFF) Input

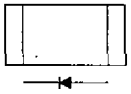
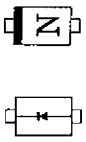
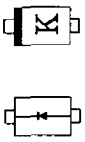
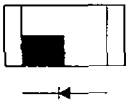
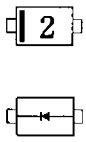
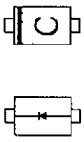
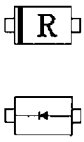
14) MM1438BW (XA1013) Litium-ion Battery Charging Control IC



1. GND
2. LV
3. SW2
4. SW1
5. VCC
6. EXT
7. CEL
8. CS

15) Transistor, Diode and LED Outline Drawings

Top View

SML-510MW	MA2S357	MA2S304	SML-A10	JDP2S02S	MA27077	MA27728
XL0110	XD0337	XD0343	XL0105	XD0384	XD0381	XD0382
						
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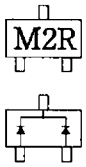	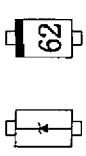	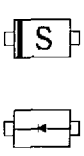	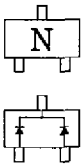	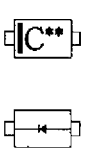	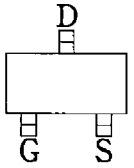	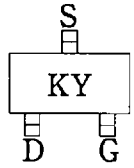
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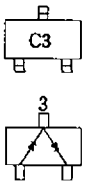	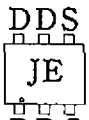	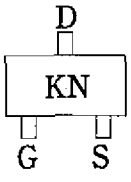	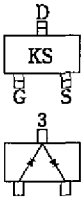	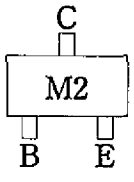	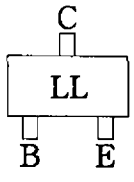	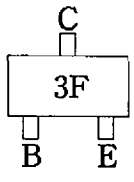
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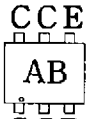
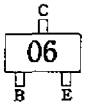
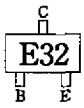
XT0195		XU0205	XU0206	XU0207	XU0208	XU0209
						
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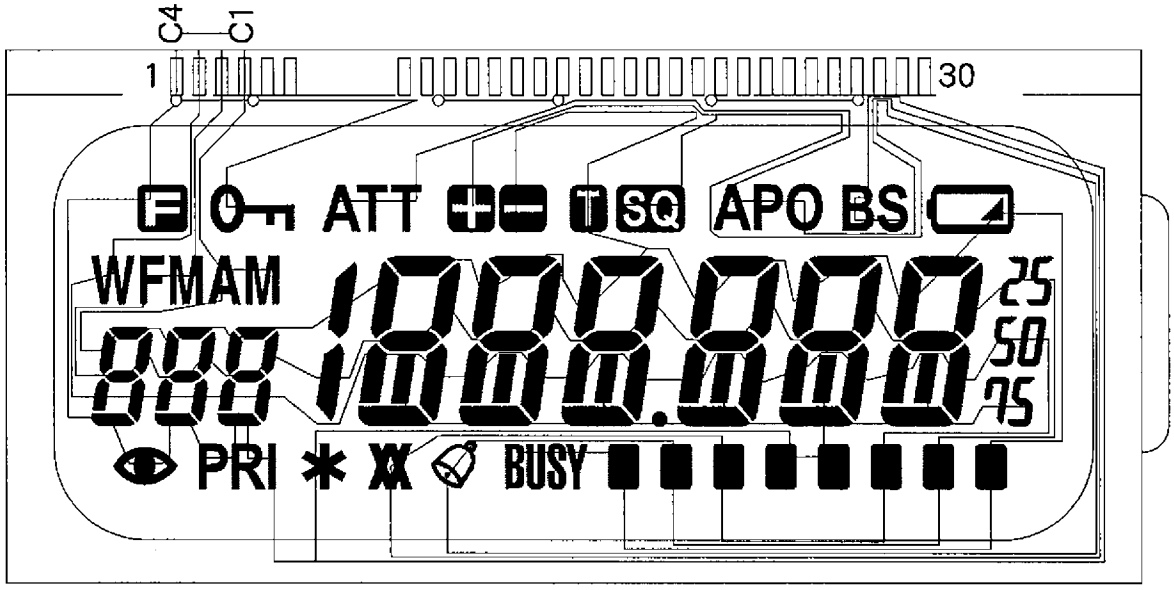
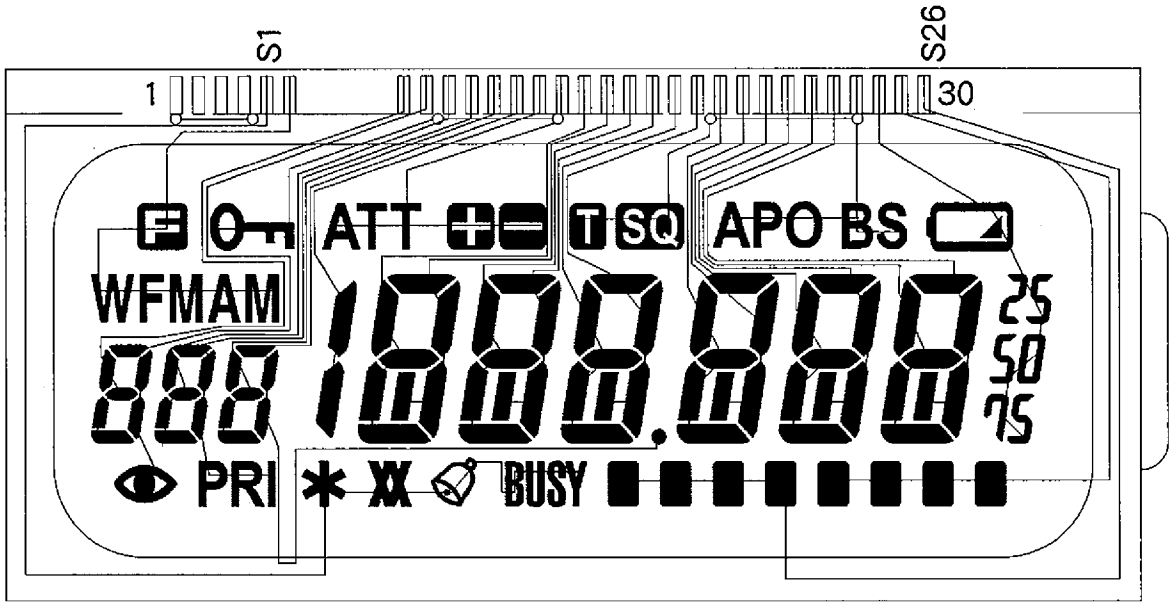
16) LCD Connection (EL0058 A48A004X)

SEGMENT

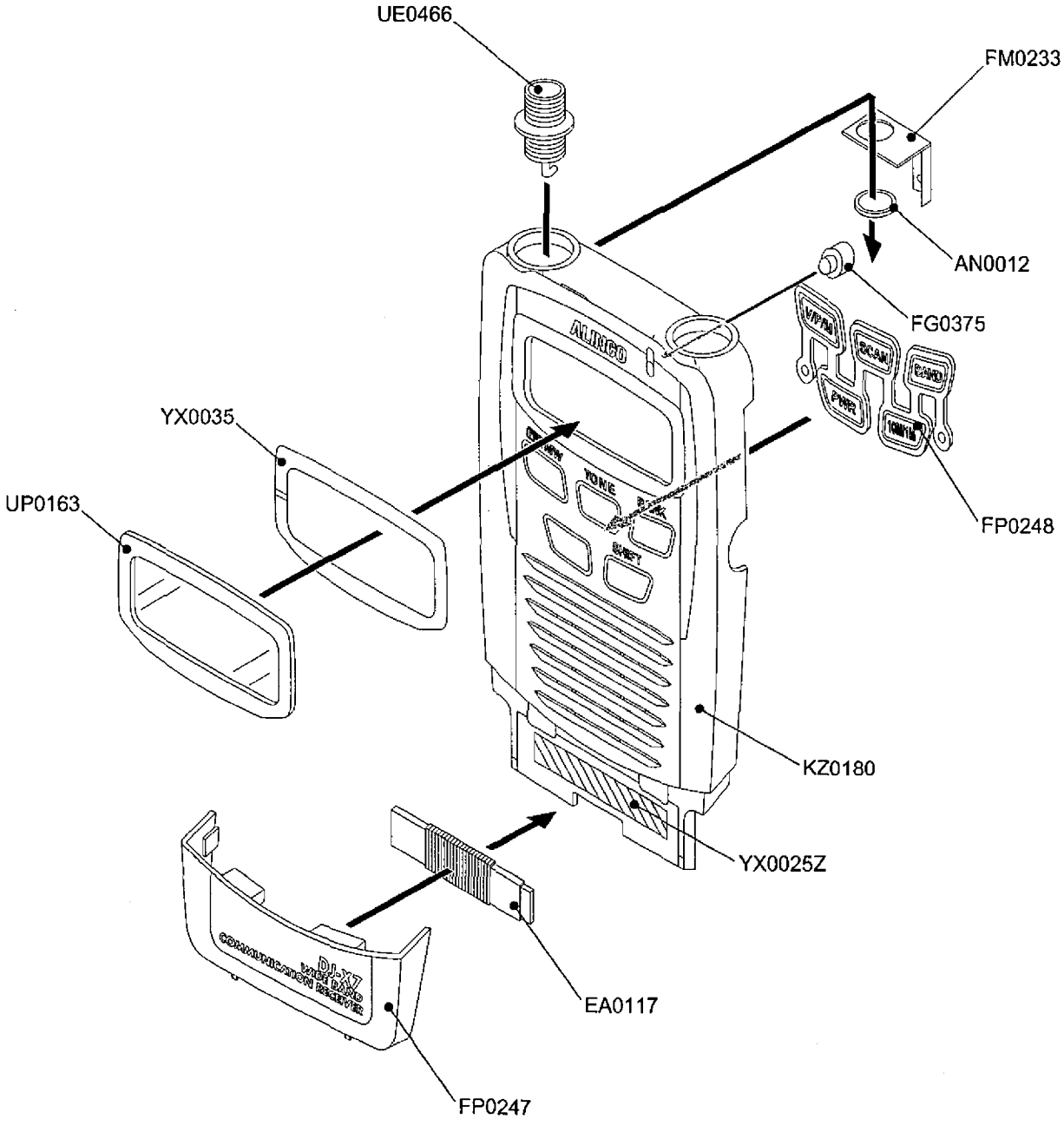


COMMON

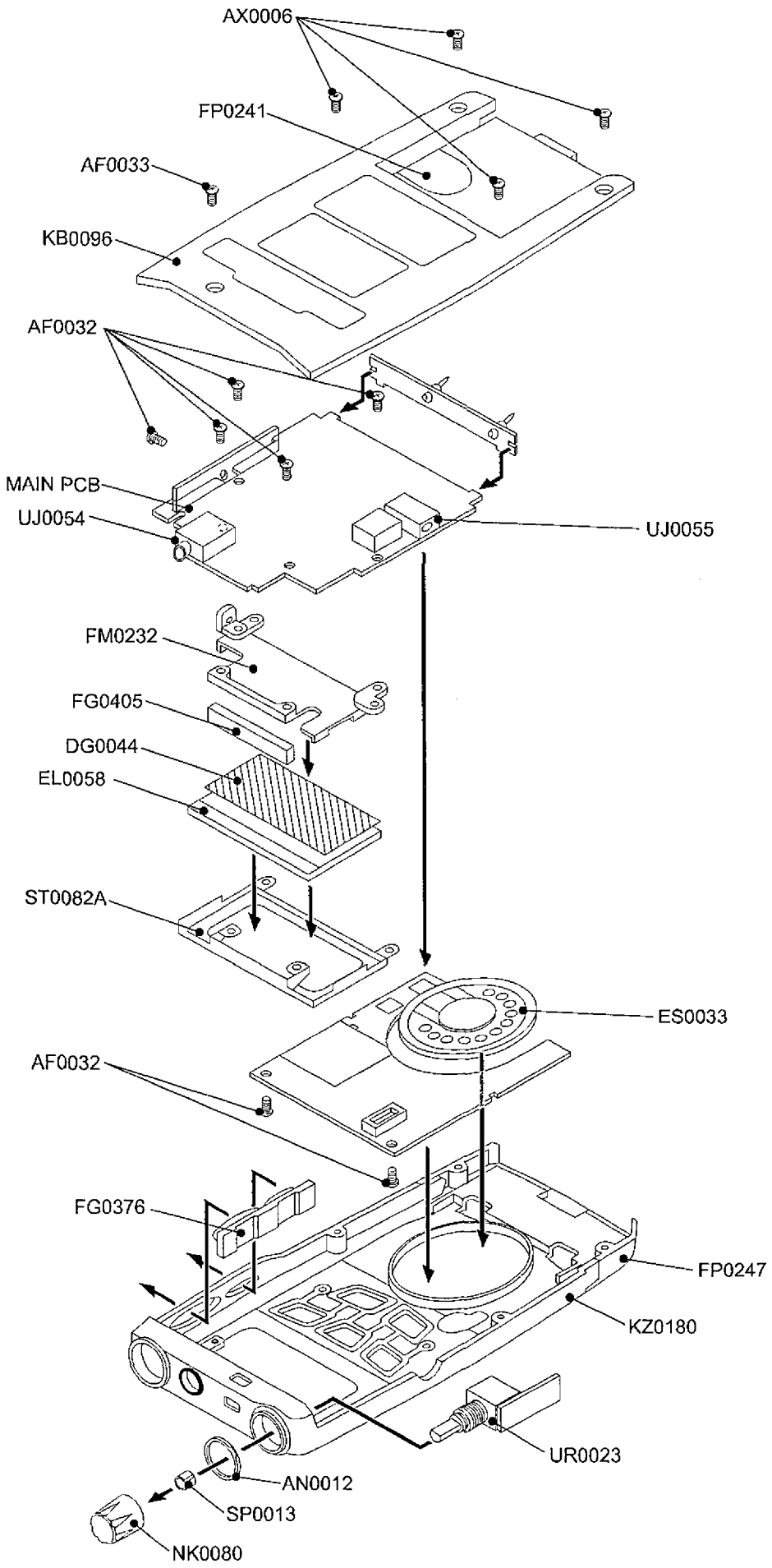


EXPLODED VIEW

1) Front View



2) Rear View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FP0241
AF0033
KB0096
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MAIN PCB
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UJ0055
FM0232
FG0405
DG0044
EL0058
ST0082A
ES0033
AF0032
FG0376
FP0247
KZ0180
UR0023
AN0012
SP0013
NK0080

PARTS LIST

MAIN Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	ST0082A		LCD HOLDER DJC7	
	UP0506A	PC Board	XH900 INTEGRATED A	
	DG0044		LCD Light	
	FG0405		LCD RUBBER CONNECTOR	
	FM0232		LCD FRAME DJC7	
	TS0168		VCO CASE B	
	TS0167		VCO CASE A	
C302	CU3554	Chip C.	GRM36B104K10PT	
C304	CU3554	Chip C.	GRM36B104K10PT	
C306	CU3547	Chip C.	GRM36B103K16PT	
C307	CU3554	Chip C.	GRM36B104K10PT	
C308	CU3554	Chip C.	GRM36B104K10PT	
C309	CU3554	Chip C.	GRM36B104K10PT	
C310	CU3523	Chip C.	GRM36CH101J50PT	
C312	CS0429	Chip Tantalum	4V22UF	
C313	CU3554	Chip C.	GRM36B104K10PT	
C314	CU3535	Chip C.	GRM36B102K50PT	
C315	CU3535	Chip C.	GRM36B102K50PT	
C316	CU3535	Chip C.	GRM36B102K50PT	
C317	CS0436	Chip Tantalum	TMCMB1C336M	
C318	CU3551	Chip C.	GRM36B223K16PT	
C319	CU3523	Chip C.	GRM36CH101J50PT	
C320	CU3518	Chip C.	GRM36CH390J50PT	
C321	CS0397	Chip Tantalum	16V 1UF	
C322	CU3539	Chip C.	GRM36B222K50PT	
C323	CU3547	Chip C.	GRM36B103K16PT	
C324	CU3520	Chip C.	1005 CH 50V 56PF J	
C325	CU3535	Chip C.	GRM36B102K50PT	
C326	CU3535	Chip C.	GRM36B102K50PT	
C327	CU3501	Chip C.	GRM36CK0R5C50PT	
C328	CU3523	Chip C.	GRM36CH101J50PT	
C329	CS0397	Chip Tantalum	16V 1UF	
C330	CS0397	Chip Tantalum	16V 1UF	
C331	CS0435	Chip C.	TMCMA0G107M	
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C333	CU3535	Chip C.	GRM36B102K50PT	
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C335	CS0402	Chip Tantalum	TMCP1D334MTR	
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C345	CU3512	Chip C.	GRM36CH120J50PT	
C346	CU3547	Chip C.	GRM36B103K16PT	
C347	CU3554	Chip C.	GRM36B104K10PT	
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C360	CU3547	Chip C.	GRM36B103K16PT	
C361	CU3547	Chip C.	GRM36B103K16PT	
C362	CU3507	Chip C.	GRM36CH060D50PT	
C363	CU3511	Chip C.	GRM36CH100D50PT	
C364	CU3507	Chip C.	GRM36CH060D50PT	

Ref. No.	Parts No.	Description	Parts Name	Version
C365	CU3515	Chip C.	GRM36CH220J50PT	
C366	CU3547	Chip C.	GRM36B103K16PT	
C367	CU3547	Chip C.	GRM36B103K16PT	
C368	CU3501	Chip C.	GRM36CK0R5C50PT	
C369	CU3527	Chip C.	GRM36CH221J25PT	
C370	CU3506	Chip C.	GRM36CH050C50PT	
C371	CU3515	Chip C.	GRM36CH220J50PT	
C372	CU3535	Chip C.	GRM36B102K50PT	
C373	CU3509	Chip C.	GRM36CH080D50PT	
C374	CU3509	Chip C.	GRM36CH080D50PT	
C375	CU3518	Chip C.	GRM36CH390J50PT	
C376	CU3512	Chip C.	GRM36CH120J50PT	
C377	CU3512	Chip C.	GRM36CH120J50PT	
C378	CS0431	Chip Tantalum	10V 2.2UF	
C379	CS0427	Chip Tantalum	6.3V10UF	
C380	CU3516	Chip C.	GRM36CH270J50PT	
C381	CU3519	Chip C.	GRM36CH470J50PT	
C382	CU3516	Chip C.	GRM36CH270J50PT	
C383	CU3511	Chip C.	GRM36CH100D50PT	
C384	CU3502	Chip C.	GRM36CK010C50PT	
C385	CU3547	Chip C.	GRM36B103K16PT	
C386	CU3547	Chip C.	GRM36B103K16PT	
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C392	CU3535	Chip C.	GRM36B102K50PT	
C393	CU3521	Chip C.	GRM36CH680J50PT	
C394	CU3521	Chip C.	GRM36CH680J50PT	
C395	CU3516	Chip C.	GRM36CH270J50PT	
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C402	CU3517	Chip C.	GRM36CH330J50PT	
C404	CU3502	Chip C.	GRM36CK010C50PT	
C405	CU3523	Chip C.	GRM36CH101J50PT	
C406	CU3547	Chip C.	GRM36B103K16PT	
C408	CU3512	Chip C.	GRM36CH120J50PT	
C409	CS0431	Chip Tantalum	10V 2.2UF	
C410	CU3531	Chip C.	GRM36B471K50PT	
C411	CU3535	Chip C.	GRM36B102K50PT	
C412	CS0429	Chip Tantalum	4V22UF	
C413	CS0429	Chip Tantalum	4V22UF	
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C415	CU3535	Chip C.	GRM36B102K50PT	
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C419	CU3503	Chip C.	GRM36CK020C50PT	
C420	CU3535	Chip C.	GRM36B102K50PT	
C421	CU3513	Chip C.	GRM36CH150J50PT	
C422	CU3517	Chip C.	GRM36CH330J50PT	
C423	CU3515	Chip C.	GRM36CH220J50PT	
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C429	CU3554	Chip C.	GRM36B104K10PT	
C431	CU3551	Chip C.	GRM36B223K16PT	
C432	CU3535	Chip C.	GRM36B102K50PT	

Ref. No.	Parts No.	Description	Parts Name	Version
C433	CU3508	Chip C.	1005 CH 50V 7PF D	
C434	CU3535	Chip C.	GRM36B102K50PT	
C435	CU3554	Chip C.	GRM36B104K10PT	
C436	CU3547	Chip C.	GRM36B103K16PT	
C437	CU3559	Chip C.	GRM155B30J105KE18D	
C438	CU3514	Chip C.	GRM36CH180J50PT	
C439	CU3514	Chip C.	GRM36CH180J50PT	
C440	CU3554	Chip C.	GRM36B104K10PT	
C441	CS0428	Chip Tantalum	4V15UF	
C442	CU3554	Chip C.	GRM36B104K10PT	
C443	CU3547	Chip C.	GRM36B103K16PT	
C444	CU3535	Chip C.	GRM36B102K50PT	
C445	CU3531	Chip C.	GRM36B471K50PT	
C446	CU3504	Chip C.	GRM36CJ030C50PT	
C447	CU3531	Chip C.	GRM36B471K50PT	
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C451	CU3554	Chip C.	GRM36B104K10PT	
C452	CU3554	Chip C.	GRM36B104K10PT	
C453	CU3511	Chip C.	GRM36CH100D50PT	
C454	CU3547	Chip C.	GRM36B103K16PT	
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C459	CS0429	Chip Tantalum	4V22UF	
C460	CU3547	Chip C.	GRM36B103K16PT	
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C462	CU3512	Chip C.	GRM36CH120J50PT	
C463	CU3554	Chip C.	GRM36B104K10PT	
C464	CU3520	Chip C.	1005 CH 50V 56PF J	
C465	CU3524	Chip C.	1005 CH 50V 120PF J	
C466	CU3522	Chip C.	GRM36CH820J50PT	
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C471	CU3554	Chip C.	GRM36B104K10PT	
C472	CU3504	Chip C.	GRM36CJ030C50PT	
C473	CU3503	Chip C.	GRM36CK020C50PT	
C474	CU3503	Chip C.	GRM36CK020C50PT	
C475	CU3504	Chip C.	GRM36CJ030C50PT	
C476	CU3517	Chip C.	GRM36CH330J50PT	
C477	CU3517	Chip C.	GRM36CH330J50PT	
C478	CU3547	Chip C.	GRM36B103K16PT	
C479	CU3523	Chip C.	GRM36CH101J50PT	
C480	CS0431	Chip Tantalum	10V 2.2UF	
C481	CS0425	Chip Tantalum	TMCMBOJ107MTR	
C482	CU3554	Chip C.	GRM36B104K10PT	
C483	CU3554	Chip C.	GRM36B104K10PT	
C484	CU3559	Chip C.	GRM155B30J105KE18D	
C485	CU3554	Chip C.	GRM36B104K10PT	
C486	CS0425	Chip Tantalum	TMCMBOJ107MTR	
C487	CU3559	Chip C.	GRM155B30J105KE18D	
C488	CS0397	Chip Tantalum	16V 1UF	
C490	CU3559	Chip C.	GRM155B30J105KE18D	
C491	CU3535	Chip C.	GRM36B102K50PT	
C492	CU3535	Chip C.	GRM36B102K50PT	
C493	CS0436	Chip Tantalum	TMCMB1C336M	
C494	CU3551	Chip C.	GRM36B223K16PT	
C495	CU3551	Chip C.	GRM36B223K16PT	
C496	CU3547	Chip C.	GRM36B103K16PT	
C497	CU3535	Chip C.	GRM36B102K50PT	
C498	CS0429	Chip Tantalum	4V22UF	
C499	CU3547	Chip C.	GRM36B103K16PT	
C500	CS0431	Chip Tantalum	10V 2.2UF	
CN301	UE0474	Connector	AXK6F16545YJ	
D306	XD0400	Chip Diode	DAN222MT2L	
D307	XD0384	Chip Diode	JDP2S02S(TPH3)	
D308	XD0384	Chip Diode	JDP2S02S(TPH3)	

Ref. No.	Parts No.	Description	Parts Name	Version
D309	XD0383	Chip Diode	MA781WK-TX	
D310	XD0337	Chip Diode	MA2S357-TX	
D311	XD0337	Chip Diode	MA2S357-TX	
D312	XD0381	Chip Diode	MA27077	
D313	XD0381	Chip Diode	MA27077	
D315	XD0384	Chip Diode	JDP2S02S(TPH3)	
D316	XD0384	Chip Diode	JDP2S02S(TPH3)	
D317	XD0338	Chip Diode	1SS362(TE85L)	
D318	XD0384	Chip Diode	JDP2S02S(TPH3)	
D319	XD0400	Chip Diode	DAN222MT2L	
D320	XD0400	Chip Diode	DAN222MT2L	
D321	XD0343	Chip Diode	MA2S304001AR	
D322	XD0384	Chip Diode	JDP2S02S(TPH3)	
D323	XD0384	Chip Diode	JDP2S02S(TPH3)	
D324	XD0343	Chip Diode	MA2S304001AR	
D325	XD0384	Chip Diode	JDP2S02S(TPH3)	
D326	XD0384	Chip Diode	JDP2S02S(TPH3)	
D327	XD0400	Chip Diode	DAN222MT2L	
D328	XD0384	Chip Diode	JDP2S02S(TPH3)	
D329	XD0384	Chip Diode	JDP2S02S(TPH3)	
D330	XD0384	Chip Diode	JDP2S02S(TPH3)	
D331	XL0110	Chip LED	SML-510MWT86	
D335	XD0384	Chip Diode	JDP2S02S(TPH3)	
D336	XD0384	Chip Diode	JDP2S02S(TPH3)	
D337	XD0384	Chip Diode	JDP2S02S(TPH3)	
D338	XD0384	Chip Diode	JDP2S02S(TPH3)	
D339	XD0384	Chip Diode	JDP2S02S(TPH3)	
D340	XD0382	Chip Diode	MA27728	
D341	XD0381	Chip Diode	MA27077	
D342	XD0400	Chip Diode	DAN222MT2L	
D343	XD0384	Chip Diode	JDP2S02S(TPH3)	
D344	XD0384	Chip Diode	JDP2S02S(TPH3)	
D345	XD0383	Chip Diode	MA781WK-TX	
D346	XD0383	Chip Diode	MA781WK-TX	
D347	XD0401	Chip Diode	DG1M3	
D348	XD0400	Chip Diode	DAN222MT2L	
D349	XD0397	Chip Diode	MA2711100L	
D350	XD0396	Chip Diode	VDZT2R 3.9B	
FL301	XF0061	Crystal Filter	DSF444SAF 39.15MHZ	
FL302	XC0095	SAW Filter	PAFC243B	
FL303	XC0097	Ceramic Filter	SFECV10M7JA00-R0	
FL304	XC0075	Ceramic Filter	CFUCG450E-TC	
IC301	XA0950	IC	TK11850LTL	
IC302	XA1033	IC	MB15F07SLPFV1-G-BND	
IC303	XA1035	IC	TC7SZ04AFE0	
IC304	XA0976	IC	UPC2757TB-E3	
IC305	XA0976	IC	UPC2757TB-E3	
IC306	XA0519	IC	XC62SPR332MR	
IC307	XA0985	IC	UPC2746TB	
IC308	XA1086	IC	M3826A-OTPX7T	
IC308	XA1088	IC	M3826AMFA-210GPX7B	
IC309	XA0666	IC	TK10931V	
IC310	XA0348	IC	TC4W53FU(TE12L)	
IC311	XA1034	IC	AT24C256-10TU-2.7	
IC312	XA1009	IC	BD4930FVE-TR	
IC313	XA0210	IC	IC NJM2070M	
IC314	XA0882	IC	BU9831F	
JK301	UJ0054	Jack	HSJ1102-01-520	
JK302	UJ0055	Jack	HEC4306-010010	
L301	QC0709	Chip Inductor	HK1005R10J	
L302	QC0586	Chip Inductor	LQW1608A15NJ00T1	
L303	QC0737	Chip Inductor	C3-Z1.5R-EE	
L304	QC0738	Chip Inductor	LQH32CN100K33L	
L305	QC0696	Chip Inductor	HK10058N2J	
L306	QC0732	Chip Inductor	LK10051R0K-B	
L308	QC0729	Chip Inductor	LK1005R56K-B	
L309	QC0700	Chip Inductor	HK100518NJ	
L310	QC0700	Chip Inductor	HK100518NJ	
L311	QC0590	Chip Inductor	LQW1608A33NJ00T1	
L312	QC0702	Chip Inductor	HK100527NJ	
L313	QC0710	Chip Inductor	HK1005R12J	

Ref. No.	Parts No.	Description	Parts Name	Version
L314	QC0729	Chip Inductor	LK1005R56K-B	
L315	QC0709	Chip Inductor	HK1005R10J	
L316	QC0709	Chip Inductor	HK1005R10J	
L317	QC0702	Chip Inductor	HK100527NJ	
L318	QC0699	Chip Inductor	HK100515NJ	
L319	QC0702	Chip Inductor	HK100527NJ	
L320	QC0725	Chip Inductor	LK1005R27K-B	
L322	QC0709	Chip Inductor	HK1005R10J	
L323	QC0709	Chip Inductor	HK1005R10J	
L324	QC0724	Chip Inductor	LK1005R22K-B	
L325	QC0710	Chip Inductor	HK1005R12J	
L326	QC0724	Chip Inductor	LK1005R22K-B	
L327	QC0708	Chip Inductor	HK100582NJ	
L328	QC0709	Chip Inductor	HK1005R10J	
L329	QC0736	Chip Inductor	LK10052R2K-B	
L330	QC0698	Chip Inductor	HK100512NJ	
L331	QC0706	Chip Inductor	HK100556NJ	
L332	QC0706	Chip Inductor	HK100556NJ	
L333	QC0694	Chip Inductor	HK10055N6S	
L334	QC0692	Chip Inductor	HK10053N9S	
L335	QC0694	Chip Inductor	HK10055N6S	
L336	QC0705	Chip Inductor	HK100547NJ	
L337	QC0700	Chip Inductor	HK100518NJ	
L338	QC0700	Chip Inductor	HK100518NJ	
L339	QC0700	Chip Inductor	HK100518NJ	
L340	QC0697	Chip Inductor	HK100510NJ	
L341	QC0697	Chip Inductor	HK100510NJ	
L342	QA0160	Coil	K5-S2/33331 R12T739B	
L343	QC0724	Chip Inductor	LK1005R22K-B	
L344	QC0725	Chip Inductor	LK1005R27K-B	
L345	QA0159	Coil	DET COIL QA0159	
L346	QC0695	Chip Inductor	HK10056N8J	
L347	QC0694	Chip Inductor	HK10055N6S	
L348	QC0695	Chip Inductor	HK10056N8J	
L349	QC0732	Chip Inductor	LK10051R0K-B	
LCD30	EL0058	LCD	LCD XH900	
Q301	XE0036	Chip FET	FET 2SK881-Y(TE85R)	
Q302	XE0051	Chip FET	2SJ347 TE85L	
Q303	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q304	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q305	XU0208	Chip Transistor	EMD3T2R	
Q306	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q307	XE0029	Chip FET	2SK1580-T1	
Q308	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q309	XU0206	Chip Transistor	DTA123JMT2L	
Q310	XU0207	Chip Transistor	EMA8T2R	
Q311	XU0205	Chip Transistor	DTC144TMT2L	
Q312	XU0207	Chip Transistor	EMA8T2R	
Q313	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q314	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q315	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q316	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q317	XT0181	Chip Transistor	2SC4738-BL(TE85R)	
Q318	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q319	XT0181	Chip Transistor	2SC4738-BL(TE85R)	
Q320	XU0206	Chip Transistor	DTA123JMT2L	
Q321	XU0206	Chip Transistor	DTA123JMT2L	
Q322	XT0180	Chip Transistor	2SC5066FT-Y(TE85L)	
Q323	XU0205	Chip Transistor	DTC144TMT2L	
Q324	XU0208	Chip Transistor	EMD3T2R	
Q325	XT0192	Chip Transistor	2SC5609	
Q327	XU0205	Chip Transistor	DTC144TMT2L	
Q328	XU0208	Chip Transistor	EMD3T2R	
Q329	XU0207	Chip Transistor	EMA8T2R	
Q330	XE0059	Chip FET	2SK3541T2L	
Q331	XU0207	Chip Transistor	EMA8T2R	
Q332	XU0207	Chip Transistor	EMA8T2R	
Q333	XU0207	Chip Transistor	EMA8T2R	
Q334	XU0207	Chip Transistor	EMA8T2R	
Q335	XU0207	Chip Transistor	EMA8T2R	
Q336	XU0207	Chip Transistor	EMA8T2R	

Ref. No.	Parts No.	Description	Parts Name	Version
Q337	XU0207	Chip Transistor	EMA8T2R	
Q338	XU0205	Chip Transistor	DTC144TMT2L	
Q339	XU0206	Chip Transistor	DTA123JMT2L	
Q340	XT0192	Chip Transistor	2SC5609	
Q341	XT0195	Chip Transistor	MCH6102-TL	
Q342	XU0205	Chip Transistor	DTC144TMT2L	
Q344	XT0181	Chip Transistor	2SC4738-BL(TE85R)	
R301	RK3550	Chip R.	1005 1/16W 10K OHM J	
R302	RK3536	Chip R.	1005 1/16W 680 OHM J	
R303	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R304	RK3501	Chip R.	1005 1/16W 0 OHM J	T
R305	RK3550	Chip R.	1005 1/16W 10K OHM J	
R306	RK3526	Chip R.	1005 1/16W 100 OHM J	
R307	RK3526	Chip R.	1005 1/16W 100 OHM J	
R308	RK3522	Chip R.	1005 1/16W 47 OHM J	
R309	RK3522	Chip R.	1005 1/16W 47 OHM J	
R310	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R311	RK3526	Chip R.	1005 1/16W 100 OHM J	
R312	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R313	RK3550	Chip R.	1005 1/16W 10K OHM J	
R314	RK3526	Chip R.	1005 1/16W 100 OHM J	
R315	RK3568	Chip R.	1005 1/16W 330K OHMJ	
R316	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R317	RK3550	Chip R.	1005 1/16W 10K OHM J	
R318	RK3534	Chip R.	1005 1/16W 470 OHM J	
R319	RK3522	Chip R.	1005 1/16W 47 OHM J	
R320	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R321	RK3550	Chip R.	1005 1/16W 10K OHM J	
R322	RK3550	Chip R.	1005 1/16W 10K OHM J	
R323	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R324	RK3550	Chip R.	1005 1/16W 10K OHM J	
R325	RK3552	Chip R.	1005 1/16W 15K OHM J	
R326	RK3502	Chip R.	1005 1/16W 1.0 OHM J	
R327	RK3550	Chip R.	1005 1/16W 10K OHM J	
R328	RK3550	Chip R.	1005 1/16W 10K OHM J	
R329	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R330	RK3546	Chip R.	1005 1/16W 4.7K OHMJ	
R331	RK3550	Chip R.	1005 1/16W 10K OHM J	
R332	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R333	RK3501	Chip R.	1005 1/16W 0 OHM J	
R334	RK3534	Chip R.	1005 1/16W 470 OHM J	
R335	RK3550	Chip R.	1005 1/16W 10K OHM J	
R336	RK3526	Chip R.	1005 1/16W 100 OHM J	
R337	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R339	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R340	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R341	RK3521	Chip R.	1005 1/16W 39 OHM J	
R342	RK3521	Chip R.	1005 1/16W 39 OHM J	
R343	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R345	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R346	RK3514	Chip R.	1005 1/16W 10 OHM J	
R347	RK3550	Chip R.	1005 1/16W 10K OHM J	
R348	RK3563	Chip R.	1005 1/16W 120K OHMJ	
R349	RK3526	Chip R.	1005 1/16W 100 OHM J	
R350	RK3526	Chip R.	1005 1/16W 100 OHM J	
R351	RK3550	Chip R.	1005 1/16W 10K OHM J	
R352	RK3522	Chip R.	1005 1/16W 47 OHM J	
R353	RK3522	Chip R.	1005 1/16W 47 OHM J	
R354	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R355	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R356	RK3550	Chip R.	1005 1/16W 10K OHM J	
R357	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R358	RK3532	Chip R.	1005 1/16W 330 OHM J	
R359	RK3550	Chip R.	1005 1/16W 10K OHM J	
R360	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R361	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R362	RK3526	Chip R.	1005 1/16W 100 OHM J	
R363	RK3534	Chip R.	1005 1/16W 470 OHM J	
R364	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R365	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R366	RK3562	Chip R.	1005 1/16W 100K OHMJ	

Ref. No.	Parts No.	Description	Parts Name	Version
R371	RK3526	Chip R.	1005 1/16W 100 OHM J	
R372	RK3526	Chip R.	1005 1/16W 100 OHM J	
R373	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R374	RK3534	Chip R.	1005 1/16W 470 OHM J	
R375	RK3550	Chip R.	1005 1/16W 10K OHM J	
R376	RK3530	Chip R.	1005 1/16W 220 OHM J	
R377	RK3550	Chip R.	1005 1/16W 10K OHM J	
R378	RK3526	Chip R.	1005 1/16W 100 OHM J	
R379	RK3526	Chip R.	1005 1/16W 100 OHM J	
R380	RK3568	Chip R.	1005 1/16W 330K OHMJ	
R381	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R382	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R383	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R384	RK3550	Chip R.	1005 1/16W 10K OHM J	
R385	RK3522	Chip R.	1005 1/16W 47 OHM J	
R386	RK3522	Chip R.	1005 1/16W 47 OHM J	
R387	RK3561	Chip R.	1005 1/16W 82K OHM J	
R388	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R389	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R390	RK3550	Chip R.	1005 1/16W 10K OHM J	
R391	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R392	RK3529	Chip R.	1005 1/16W 180 OHM J	
R393	RK3532	Chip R.	1005 1/16W 330 OHM J	
R394	RK3532	Chip R.	1005 1/16W 330 OHM J	
R395	RK3550	Chip R.	1005 1/16W 10K OHM J	
R396	RK3522	Chip R.	1005 1/16W 47 OHM J	
R397	RK3526	Chip R.	1005 1/16W 100 OHM J	
R398	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R399	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R400	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R401	RK3559	Chip R.	1005 1/16W 56K OHM J	
R402	RK3530	Chip R.	1005 1/16W 220 OHM J	
R403	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R404	RK3501	Chip R.	1005 1/16W 0 OHM J	
R405	RK3550	Chip R.	1005 1/16W 10K OHM J	
R406	RK3550	Chip R.	1005 1/16W 10K OHM J	
R407	RK3550	Chip R.	1005 1/16W 10K OHM J	
R408	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R409	RK3561	Chip R.	1005 1/16W 82K OHM J	
R410	RK3558	Chip R.	1005 1/16W 47K OHM J	
R411	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R412	RK3550	Chip R.	1005 1/16W 10K OHM J	
R413	RK3529	Chip R.	1005 1/16W 180 OHM J	
R414	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R417	RK3553	Chip R.	1005 1/16W 18K OHM J	
R418	RK3514	Chip R.	1005 1/16W 10 OHM J	
R419	RK3550	Chip R.	1005 1/16W 10K OHM J	
R420	RK3565	Chip R.	1005 1/16W 180K OHMJ	
R421	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R422	RK3554	Chip R.	1005 1/16W 22K OHM J	
R423	RK3544	Chip R.	1005 1/16W 3.3K OHMJ	
R424	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R425	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R426	RK3558	Chip R.	1005 1/16W 47K OHM J	
R427	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R428	RK3568	Chip R.	1005 1/16W 330K OHMJ	
R429	RK3546	Chip R.	1005 1/16W 4.7K OHMJ	
R430	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R431	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R432	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R433	RK3548	Chip R.	1005 1/16W 6.8K OHMJ	
R434	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R435	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R436	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R437	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R438	RK3558	Chip R.	1005 1/16W 47K OHM J	
R439	RK3501	Chip R.	1005 1/16W 0 OHM J	
R440	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R441	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R442	RK3550	Chip R.	1005 1/16W 10K OHM J	
R443	RK3553	Chip R.	1005 1/16W 18K OHM J	
R444	RK3554	Chip R.	1005 1/16W 22K OHM J	
R445	RK3554	Chip R.	1005 1/16W 22K OHM J	
R446	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R447	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R448	RK3554	Chip R.	1005 1/16W 22K OHM J	
R449	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R450	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R451	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R452	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R453	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R454	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R456	RK3558	Chip R.	1005 1/16W 47K OHM J	
R457	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R458	RK3548	Chip R.	1005 1/16W 6.8K OHMJ	
R459	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R460	RK3514	Chip R.	1005 1/16W 10 OHM J	
R461	RK3530	Chip R.	1005 1/16W 220 OHM J	
R462	RK3526	Chip R.	1005 1/16W 100 OHM J	
R464	RK3542	Chip R.	1005 1/16W 2.2K OHMJ	
R465	RK3501	Chip R.	1005 1/16W 0 OHM J	
R466	RK3568	Chip R.	1005 1/16W 330K OHMJ	
R467	RK3550	Chip R.	1005 1/16W 10K OHM J	
R468	RK3578	Chip R.	1005 1/16W 2.2M OHMJ	
R469	RK3550	Chip R.	1005 1/16W 10K OHM J	
R470	RK3556	Chip R.	1005 1/16W 33K OHM J	E
R471	RK3554	Chip R.	1005 1/16W 22K OHM J	
R472	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R473	RK3554	Chip R.	1005 1/16W 22K OHM J	E
R474	RK3566	Chip R.	1005 1/16W 220K OHMJ	
R475	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R476	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R477	RK3550	Chip R.	1005 1/16W 10K OHM J	
R478	RK3550	Chip R.	1005 1/16W 10K OHM J	
R479	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R480	RK3553	Chip R.	1005 1/16W 18K OHM J	
R481	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R482	RK3537	Chip R.	1005 1/16W 820 OHM J	
R484	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R485	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R486	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R487	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R488	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R490	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R491	RK3501	Chip R.	1005 1/16W 0 OHM J	
R492	RK3554	Chip R.	1005 1/16W 22K OHM J	
TC301	CT0050	Chip Trimmer	TZY2Z100A001R00	
X301	XQ0172	Crystal	DSX321G 12.9MHz	
X302	XQ0132	Crystal	CSA309/4.194304MHZ	

BATTERY Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	UE0476		CONTACT PIN DJC7	
C101	CU3535	Chip C.	GRM36B102K50PT	
C102	CS0427	Chip Tantalum	6.3V10UF	
D101	XD0401	Chip Diode	DG1M3	
IC101	XA1013	IC	MM1438BWLE/R59-3644	
Q101	XE0058	Chip FET	MCH6305-TL	
Q102	XT0195	Chip Transistor	MCH6102-TL	
Q103	XU0205	Chip Transistor	DTC144TMT2L	
R101	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R102	RK3550	Chip R.	1005 1/16W 10K OHM J	
R103	RK3528	Chip R.	1005 1/16W 150 OHM J	
R104	RK3562	Chip R.	1005 1/16W 100K OHMJ	
R105	RK0159	Chip R.	1608 1/10W 0.33OHM J	

KEY Unit

Ref. No.	Parts No.	Description	Parts Name	Version
C205	CU3559	Chip C.	GRM155B30J105KE18D	E
C206	CU3554	Chip C.	GRM36B104K10PT	
C207	CU3552	Chip C.	GRM36B333K10PT	
C208	CU3537	Chip C.	GRM36B152K50PT	
C209	CU3552	Chip C.	GRM36B333K10PT	
C210	CU3554	Chip C.	GRM36B104K10PT	
C211	CU3559	Chip C.	GRM155B30J105KE18D	E
C212	CU3523	Chip C.	GRM36CH101J50PT	
C214	CU3547	Chip C.	GRM36B103K16PT	E
C215	CU3554	Chip C.	GRM36B104K10PT	
C216	CU3535	Chip C.	GRM36B102K50PT	
C217	CU3559	Chip C.	GRM155B30J105KE18D	E
C218	CU3559	Chip C.	GRM155B30J105KE18D	E
C219	CU3547	Chip C.	GRM36B103K16PT	E
C220	CU3547	Chip C.	GRM36B103K16PT	E
C221	CS0429	Chip Tantalum	4V22UF	E
C222	CU3559	Chip C.	GRM155B30J105KE18D	E
C223	CU3544	Chip C.	GRM36B562K25PT	E
C224	CU3559	Chip C.	GRM155B30J105KE18D	E
C225	CS0429	Chip Tantalum	4V22UF	E
C228	CU3559	Chip C.	GRM155B30J105KE18D	
CN201	UE0475	Connector	AXK5F16545YJ	
D201	XD0400	Chip LED	DAN222MT2L	
D202	XL0105	Chip LED	SML-A10MT	
D203	XL0105	Chip LED	SML-A10MT	
D204	XL0105	Chip LED	SML-A10MT	
IC202	XA0573	IC	NJM2904V-TE1	
IC203	XA0573	IC	NJM2904V-TE1	E
IC204	XA0995	IC	NJM2594V TE1	E
R208	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R209	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R211	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R213	RK3528	Chip R.	1005 1/16W 150 OHM J	
R214	RK3528	Chip R.	1005 1/16W 150 OHM J	
R215	RK3528	Chip R.	1005 1/16W 150 OHM J	
R216	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R217	RK3538	Chip R.	1005 1/16W 1.0K OHMJ	
R218	RK3554	Chip R.	1005 1/16W 22K OHM J	
R219	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R220	RK3561	Chip R.	1005 1/16W 82K OHM J	
R221	RK3561	Chip R.	1005 1/16W 82K OHM J	
R222	RK3561	Chip R.	1005 1/16W 82K OHM J	
R223	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R224	RK3501	Chip R.	1005 1/16W 0 OHM J	E
R225	RK3559	Chip R.	1005 1/16W 56K OHM J	
R226	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R227	RK3550	Chip R.	1005 1/16W 10K OHM J	E
R228	RK3556	Chip R.	1005 1/16W 33K OHM J	E
R229	RK3570	Chip R.	1005 1/16W 470K OHMJ	
R230	RK3563	Chip R.	1005 1/16W 120K OHMJ	
R231	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	
R232	RK3568	Chip R.	1005 1/16W 330K OHMJ	E
R233	RK3501	Chip R.	1005 1/16W 0 OHM J	E
R234	RK3568	Chip R.	1005 1/16W 330K OHMJ	E
R235	RK3562	Chip R.	1005 1/16W 100K OHMJ	E
R236	RK3574	Chip R.	1005 1/16W 1.0M OHMJ	E
R237	RK3566	Chip R.	1005 1/16W 220K OHMJ	E
R238	RK3552	Chip R.	1005 1/16W 15K OHM J	E
R239	RK3552	Chip R.	1005 1/16W 15K OHM J	E
R241	RK3501	Chip R.	1005 1/16W 0 OHM J	E
R242	RK3570	Chip R.	1005 1/16W 470K OHMJ	E
R243	RK3541	Chip R.	1005 1/16W 1.8K OHMJ	E
R245	RK3501	Chip R.	1005 1/16W 0 OHM J	E
SW201	UU0027	Chip Switch	SKQGAA	
SW202	UU0027	Chip Switch	SKQGAA	
SW203	UU0027	Chip Switch	SKQGAA	
SW204	UU0027	Chip Switch	SKQGAA	
SW205	UU0027	Chip Switch	SKQGAA	
VR201	RH0211	Chip Volume	PVA2A104A01R00	E

ROTARY ENCODER Unit

Ref. No.	Parts No.	Description	Parts Name	Version
RE101	UR0023	Rotary Encoder	TP70N00AE20 13.5F	

SW Unit

Ref. No.	Parts No.	Description	Parts Name	Version
SW101	UU0027	Chip Switch	SKQGAA	
SW101	UU0027	Chip Switch	SKQGAA	
SW102	UU0027	Chip Switch	SKQGAA	

Mechanical Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	KB0096		REAR CASE	
	EA0117		BAR ANTENNA EA117	
	AF0033		0ナベ17+3テB3	
	AN0012		RND N7X0.75 BR/B.ZN	
	AX0006		OPH P1.7+5.5 FE/BZN3	
	DP0163		LCD PANEL	
	AF0032		0PH M1.7+3 FE/N	
	ES0033	Speaker	28-8AB-09J	
	FG0375		ON AIR RUBBER	
	FG0376		PTT RUBBER	
	FM0233		ANTENNA GND DJC7	
	FP0247		FRONT COVER	
	FP0241		REAR COVER DJC7	
	KZ0180		FRONT CASE	
	NK0080		KNOB	
	SP0013		KNOB SPRING 7800	
	UE0466		SMA ANTENNA CONNECT.	
	YX0025Z		BA TAPE DJC7	
	YX0035		LCD TAPE DJC7	
	YZ0135		ハンダメッキセン 0.4 1ミリ	
	FP0248		KEY TOP	

Packing Unit

Ref. No.	Parts No.	Description	Parts Name	Version
	EA0133		SMA ANTENNA	
	PS0486		INSTRUCTION	
	DS0446		SPEC. SHEET	
	PR0514		E-13x13 LABEL	T
	PR0514		E-10x49 LABEL	
	PR0478		SERIAL SEAL	E
	PR0452		FCC homeuse label	T
	PR0447		FCC WARNING Label	T
	PH0015		WARRANTY T	T
	HP0006Z		PROTECTION BAG	
	EDC0126		AC ADAPTOR	T
	EDC0128		AC ADAPTOR	E
	EG0055		EBP-58N PROTECTION BAG	
	EZ0009		EME-25 PROTECTION BAG	
	HP0003		PROTECTION BAG	
	FG0309A		ANTENNA CAP	
	HK0619		Package	
	HU0209		INNER	
	HM0235		CARTON 10	
	HU0197		INNER 10	

ADJUSTMENT

1) Required Test Equipment

The following items are required to adjust radio parameters.

1. Regulated Power Supply

Supply voltage:	6.0VDC
Current:	1A or more

2. Digital Multimeter

Voltage range:	FS = Approx. 20V
Current:	10A or more
Input resistance:	High impedance

3. Oscilloscope

Measurable frequency:	Audio Frequency

4. Audio Dummy Load

Impedance:	8Ω
Dissipation:	1W or more
Jack:	2.5Φ

5. SSG

Output frequency:	1300MHz or more
Output level:	-20dBμ / 0.1μV to 120dBμ / 1V
Modulation:	FM / AM

6. Spectrum Analyzer

Measuring range:	Up to 2GHz or more

7. Audio Voltmeter

Measurable frequency:	Up to 100kHz
Sensitivity:	1mV to 10V

8. Audio Generator

Output frequency:	67Hz to 10kHz
Output impedance:	600Ω unbalanced

9. Distortion Meter / SINAD Meter

Measurable frequency:	1kHz
Input level:	Up to 40dB
Distortion level:	1% to 100%

10. Frequency Counter

Measurable frequency:	Up to 500MHz
Measurable stability:	Approx. ± 0.1ppm

11. Linear Detector

Measurable frequency:	Up to 500MHz
Characteristics:	Flat
CN:	60dB or more

Note

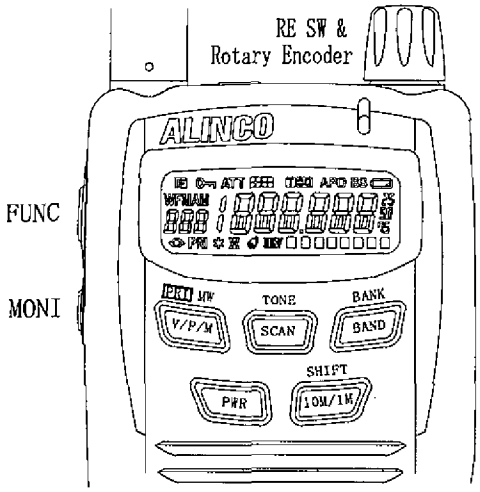
- Standard modulation: 1kHz ± 3.5kHz / DEV
- Reference sensitivity: 12dB SINAD
- Specified audio output level: 200mW at 8Ω
- Standard audio output level: 50mW at 8Ω
- Use an RF cable (3D2W: 47cm) for test equipment.
- Attach a fuse to RF indicated by EMF.
- All SSG outputs are indicated by EMF.
- Supply voltage for the transceiver: 6.0VDC

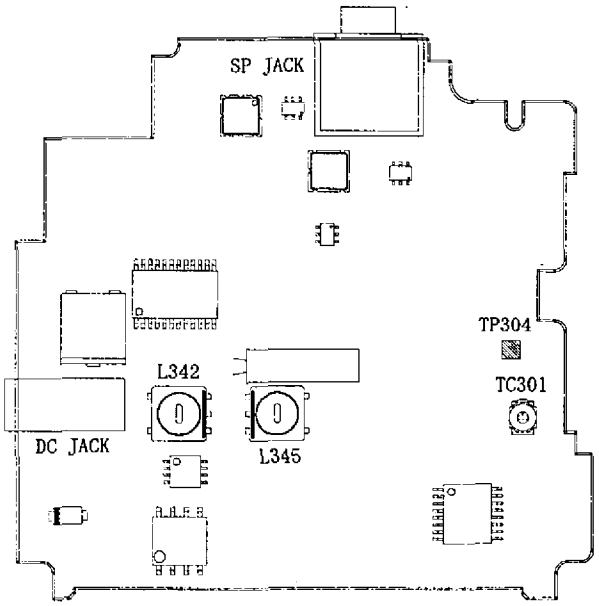
2) Entering And Releasing The Adjustment Mode

The DJ-X7 does not require a serviceperson to manipulate the components on the printed-circuit board, except the trimmer when adjusting reference frequency and deviation. Most of the adjustments for the transceiver are mode by using the keys on it while the unit is in the adjustment mode. Because the adjustment mode temporarily uses the channels, frequency must be set on each channel before adjustments can be mode. For instructions on how to program the channels, see the "DJ-X7 INSTRUCTION MANUAL" which came with the product. In consideration of the radio environment, the frequency on each channel must be near the value (+/-1MHz) listed in the table below. To enter the adjustment mode, set key lock and press [BAND], [V/P/M], [SCAN], [V/P/M], [SCAN], [BAND], and [10M/1M] key. "Freq" appears in LCD. When changing the adjustment parameters, press the [SCAN] or [BAND] key.
To exit the adjustment mode, press the [MONI] key.

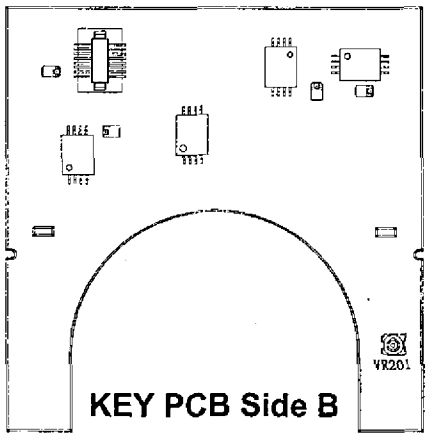
Adjustment Points

Front Side





MAIN PCB Side B



KEY PCB Side B

Set power supply voltage to 6.0V.

1. Reference frequency adjustment

Display: FrEq, Adjust point: TC301 Check Point: TP304

Adjust the TC1 to 339.5607MHz±300Hz

2. NFM-AF output adjustment

Display: nAF, Adjust point: L345

Input 80dBu to the test unit which modulation is 1kHz 3.5kHz and adjust the L345 to maximum AF level.

Frequency: 435.17MHz

3. WFM-AF output adjustment

Display: nAF, Adjust point: L342

Input 80dBu to the test unit which modulation is 1kHz 22.5kHz and adjust the L342 to maximum AF level.

Frequency: 84.5MHz

4. BP1-SQL adjustment

SQL 1 level Adjustment

Display: SqL 1L Adjust point: [V/P/M] key

Input the 14.17MHz of -9dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

SQL 9 level Adjustment

Display: SqL 1H Adjust point: [V/P/M] key

Input the 14.17MHz of -1dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

5. BP2-SQL adjustment

SQL 1 level Adjustment

Display: SqL 2L Adjust point: [V/P/M] key

Input the 109.17MHz of -12dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

SQL 9 level Adjustment

Display: SqL 2H Adjust point: [V/P/M] key

Input the 109.17MHz of -4dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

6. BP3-SQL adjustment

SQL 1 level Adjustment

Display: SqL 3L Adjust point: [V/P/M] key

Input the 145.17MHz of -10dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

SQL 9 level Adjustment

Display: SqL 3H Adjust point: [V/P/M] key

Input the 145.17MHz of -2dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

7. BP4-SQL adjustment

SQL 1 level Adjustment

Display: SqL 4L Adjust point: [V/P/M] key

Input the 330.17MHz of -7dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

SQL 9 level Adjustment

Display: SqL 4H Adjust point: [V/P/M] key

Input the 330.17MHz of 1dBu which modulation is 3.5kHz, and press the [V/P/M] key.

Check the BEEP sound.

8. BP5-SQL adjustment

SQL 1 level Adjustment
Display: SqL 5L Adjust point: [V/P/M] key
Input the 435.17MHz of -8dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

SQL 9 level Adjustment
Display: SqL 5H Adjust point: [V/P/M] key
Input the 435.17MHz of 0dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

9. BP6-SQL adjustment

SQL 1 level Adjustment
Display: SqL 6L Adjust point: [V/P/M] key
Input the 767.17MHz of -2dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

SQL 9 level Adjustment
Display: SqL 6H Adjust point: [V/P/M] key
Input the 767.17MHz of 6dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

10. BP7-SQL adjustment

SQL 1 level Adjustment
Display: SqL 7L Adjust point: [V/P/M] key
Input the 900.17MHz of 3dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

SQL 9 level Adjustment
Display: SqL 7H Adjust point: [V/P/M] key
Input the 900.17MHz of 11dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

11. NFM S-meter adjustment

S meter 1 level Adjustment.
Display: SL Adjust point: [V/P/M] key
Input the 145.17MHz of -7dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

Display: SH S meter 5 level Adjustment.
Input the 145.17MHz of 8dBu which modulation is 3.5kHz, and press the [V/P/M] key.
Check the BEEP sound.

12. AM-SQL adjustment

SQL 1 level Adjustment
Display: AqL Adjust point: [V/P/M] key
Input the 119.17MHz of -10dBu which modulation is 30%, and press the [V/P/M] key.
Check the BEEP sound.

SQL 9 level Adjustment
Display: AqH Adjust point: [V/P/M] key
Input the 119.17MHz of -2dBu which modulation is 30%, and press the [V/P/M] key.
Check the BEEP sound.

13. AM- S-meter adjustment

SQL 1 level Adjustment
Display: ASL Adjust point: [V/P/M] key
Input the 119.17MHz of -2dBu which modulation is 30%, and press the [V/P/M] key.
Check the BEEP sound.

SQL 9 level Adjustment
Display: ASH Adjust point: [V/P/M] key
Input the 119.17MHz of 12dBu which modulation is 30%, and press the [V/P/M] key.
Check the BEEP sound.

14. WFM-SQL adjustment

SQL 1 level Adjustment
Display: wqL Adjust point: [V/P/M] key
Input the 84.5MHz of -2dBu which modulation is 22.5kHz, and press the [V/P/M] key. Check the BEEP sound.

SQL 9 level Adjustment
Display: wqH Adjust point: [V/P/M] key
Input the 84.5MHz of 4dBu which modulation is 22.5kHz, and press the [V/P/M] key. Check the BEEP sound.

15. WFM- S-meter adjustment

SQL 1 level Adjustment
Display: WSL Adjust point: [V/P/M] key
Input the 84.5MHz of 0dBu which modulation is 22.5kHz, and press the [V/P/M] key. Check the BEEP sound.

SQL 9 level Adjustment
Display: WSH Adjust point: [V/P/M] key
Input the 84.5MHz of 13dBu which modulation is 22.5kHz, and press the [V/P/M] key. Check the BEEP sound.

16. Descrambling Signal level Adjustment (X7E)

Display: SCrt Adjust point : VR201
Input the 380.15MHz of 30dBu (standard modulation)
Then if the test unit has strange sound, adjust the VR201 until can't hear strange sound

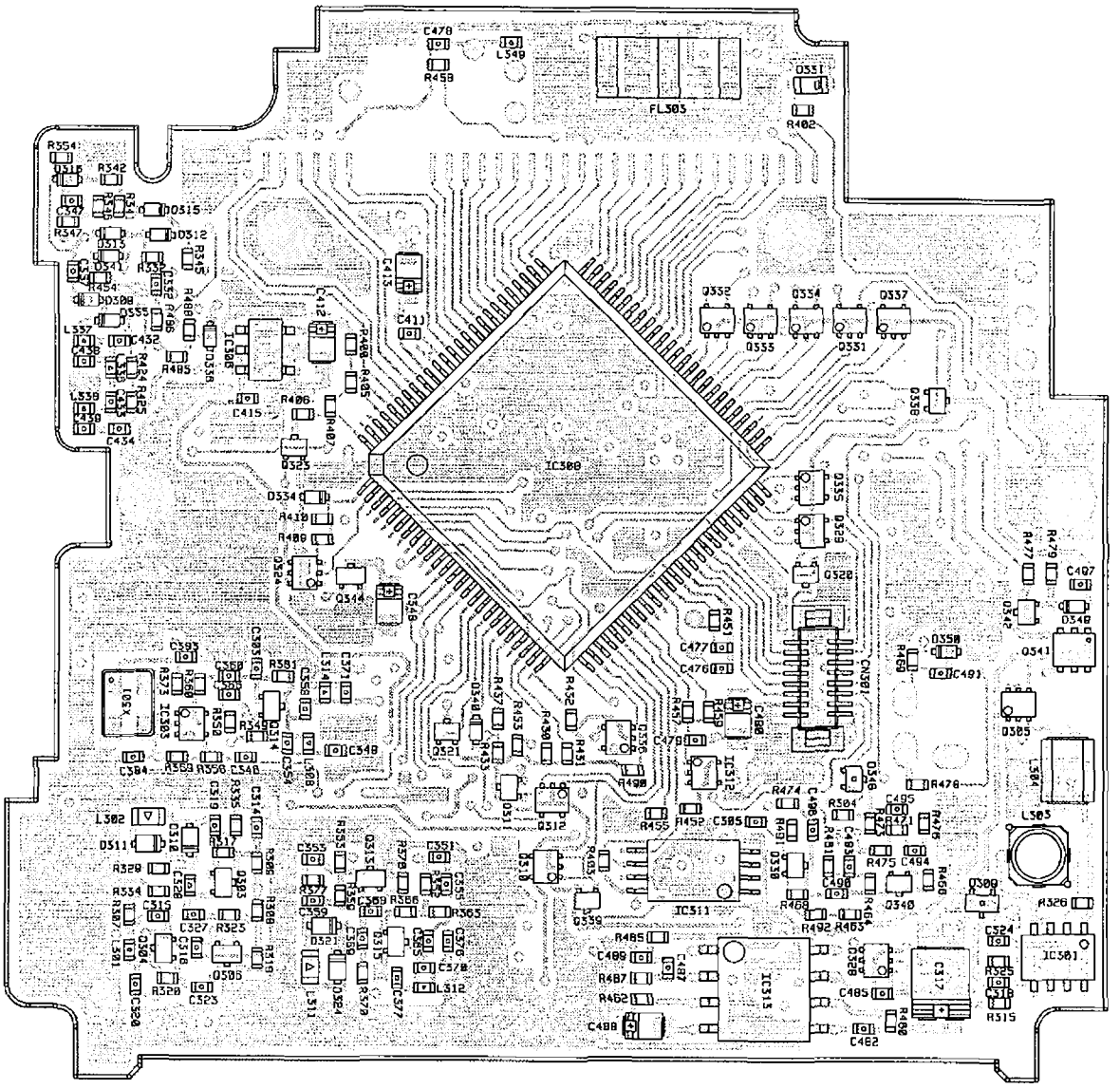
17. Low Battery Display Setting

Display: bAtt Adjust point: [V/P/M] key
Set power supply voltage to 3.7V.
After that, press the [V/P/M] key.
Check the BEEP sound.

18. Aging

Display: AGinG
Press V/P/M key to start Aging.
It's finished automatically.

MAIN Side A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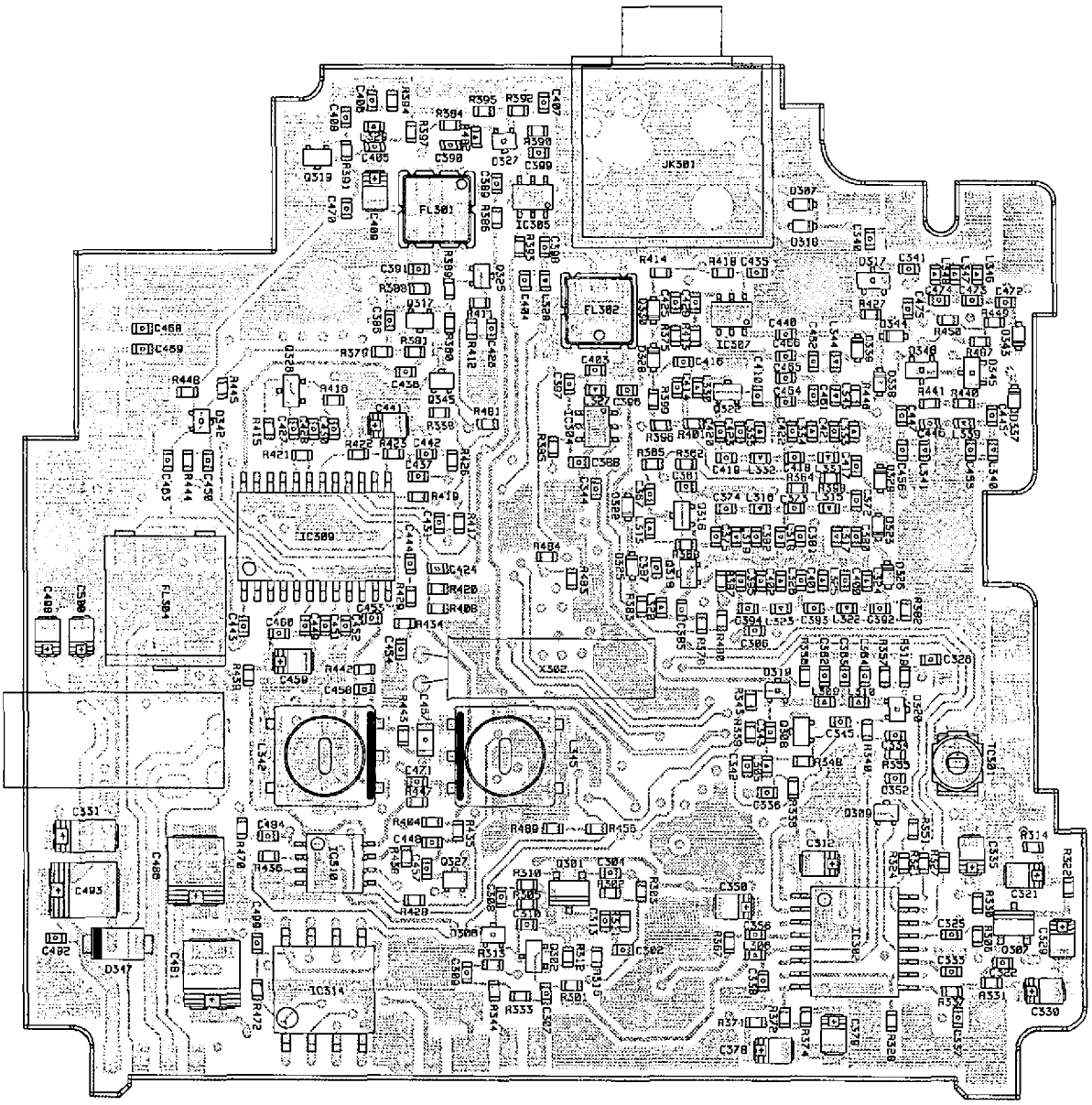
MAIN Side B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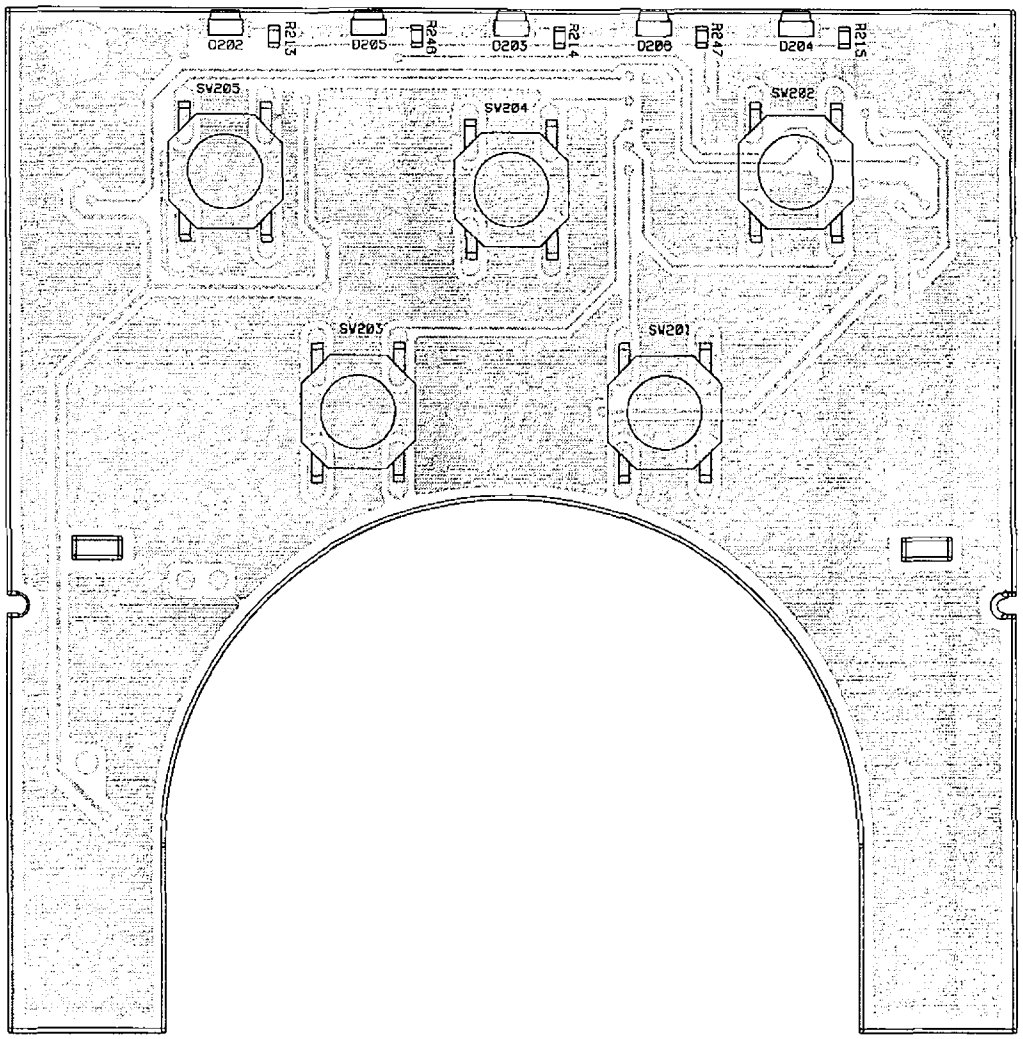
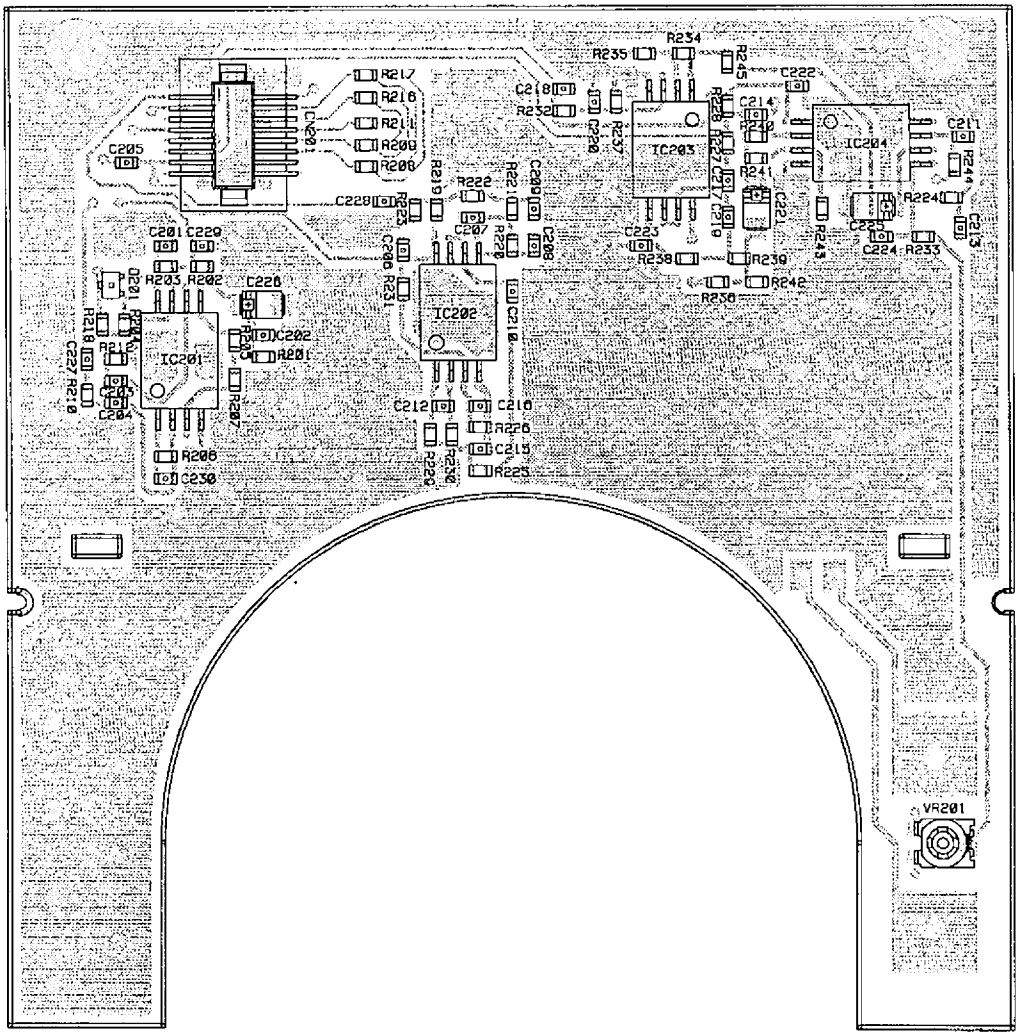
IC1000

KEY Side A


D202
R213
D205
R240
D203
R214
D206
R247
D204
R215
SW205
SW204
SW202
SW203
SW201

KEY Side B



R234
R235
R245
C222
R217
R216
R211
R209
R208
C218
R232
C220
R237
IC203
C214
R240
IC204
C211
R244
C205
C228
R223
R219
R222
R221
C209
C207
R220
C208
C223
R238
R239
R241
C221
R243
C225
R224
C224
R233
C213
C201
C229
R203
R202
C226
R231
IC202
C210
R236
R242
R218
R212
C227
R210
C203
C204
IC201
C202
R201
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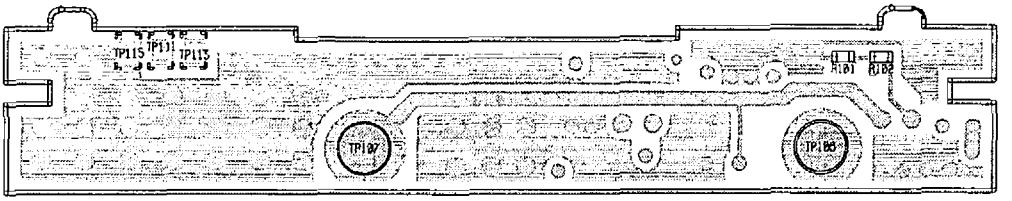
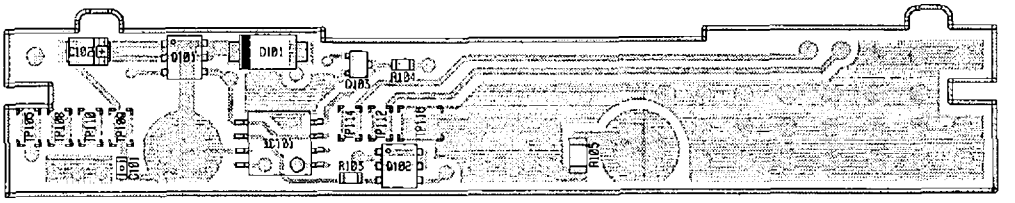
C212
C216
R226
C215
R225
R229
R230
R206
C230
VR201

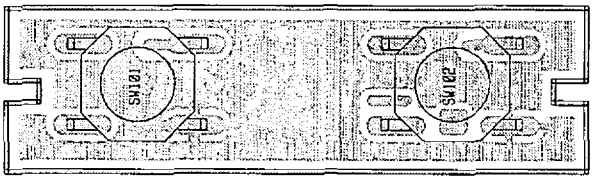
BATTERY Side A

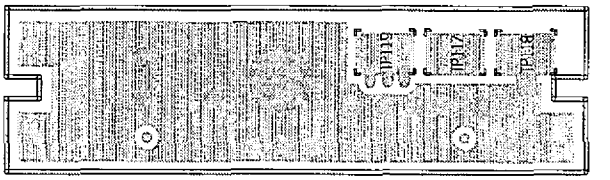


BATTERY Side B

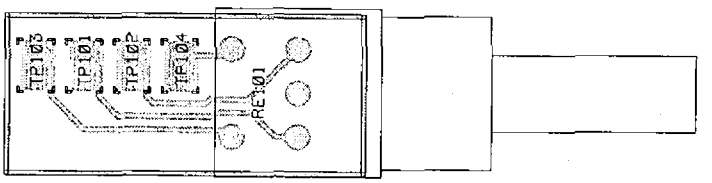


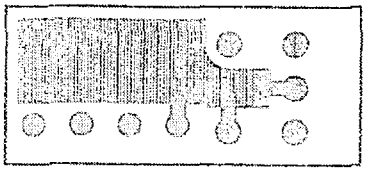
SW Side A&B

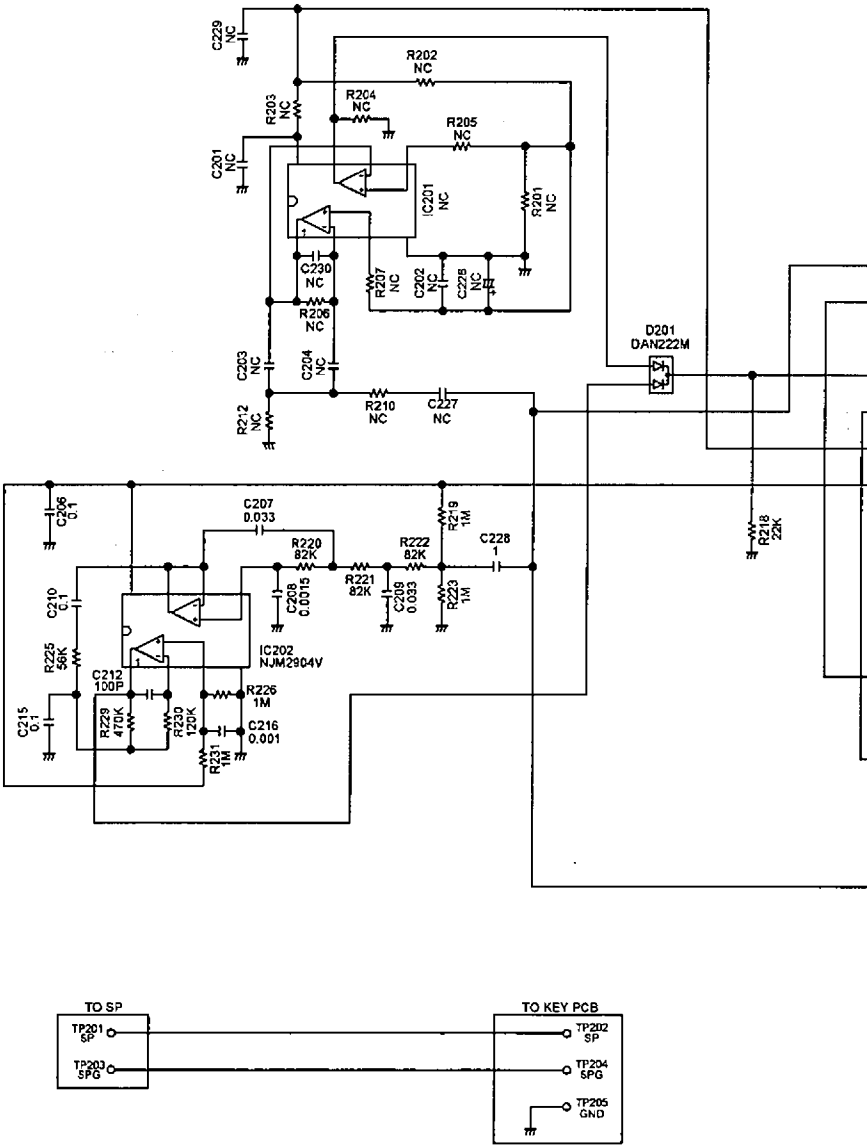




RENC Side A&B



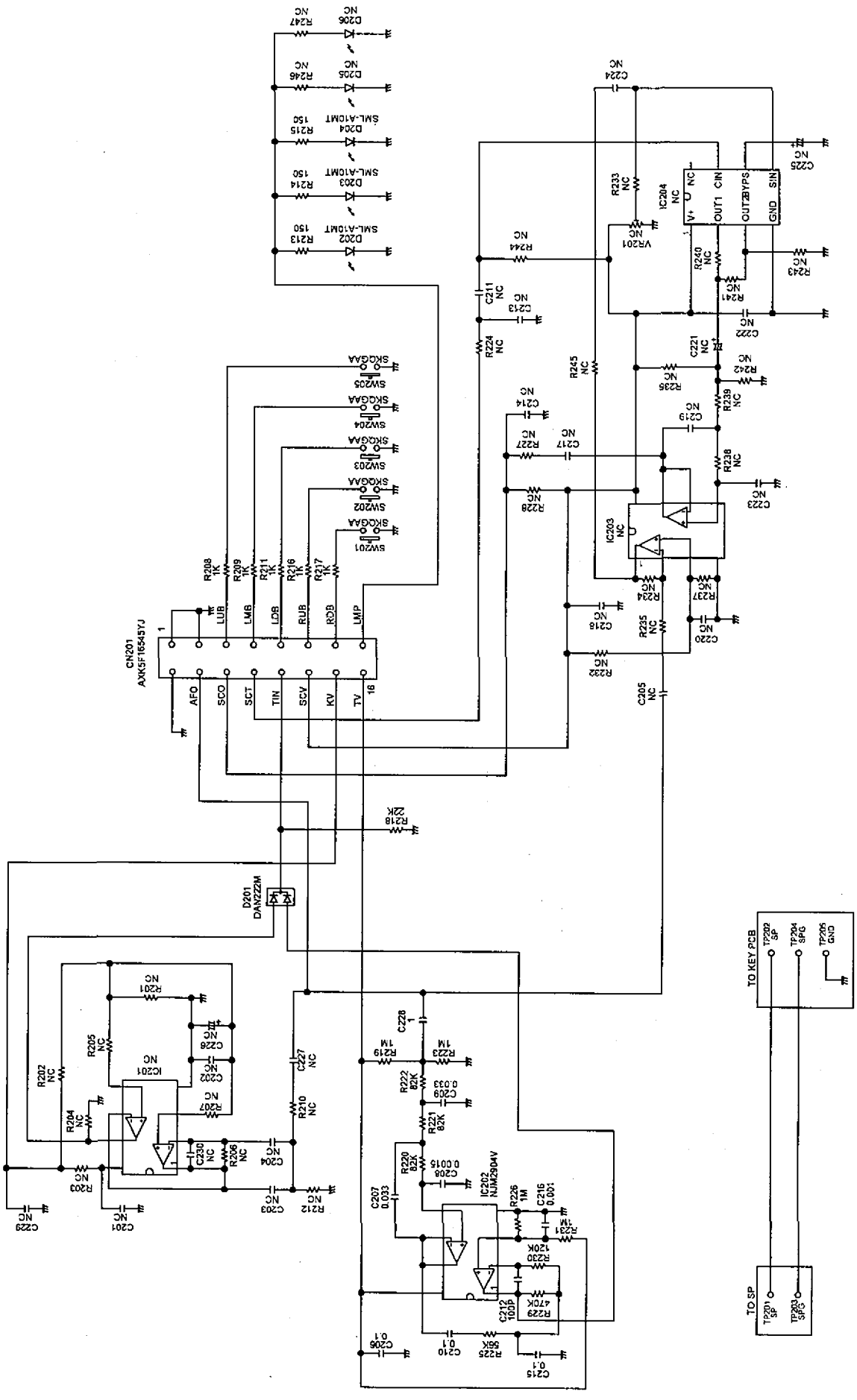



C229 NC
R202 NC
R203 NC
R204 NC
R205 NC
C201 NC
IC201 NC
R201 NC
C230 NC
R207 NC
C202 NC
C228 NC
R206 NC
C203 NC
C204 NC
D201 DAN222M
R212 NC
R210 NC
C227 NC
C206 0.1
C207 0.033
R220 82K
R222 82K
R219 1M
C228 1
R218 22K
C210 0.1
C208 0.0015
R221 82K
C209 0.033
R223 1M
R225 56K
IC202 NJM2904V
C212 100P
R226 1M
C215 0.1
R229 470K
R230 120K
C216 0.001
R231 1M
TO SP
TP201 SP
TP203 SPG
TO KEY PCB
TP202 SP
TP204 SPG
TP205 GND

KEY UNIT (X7E)

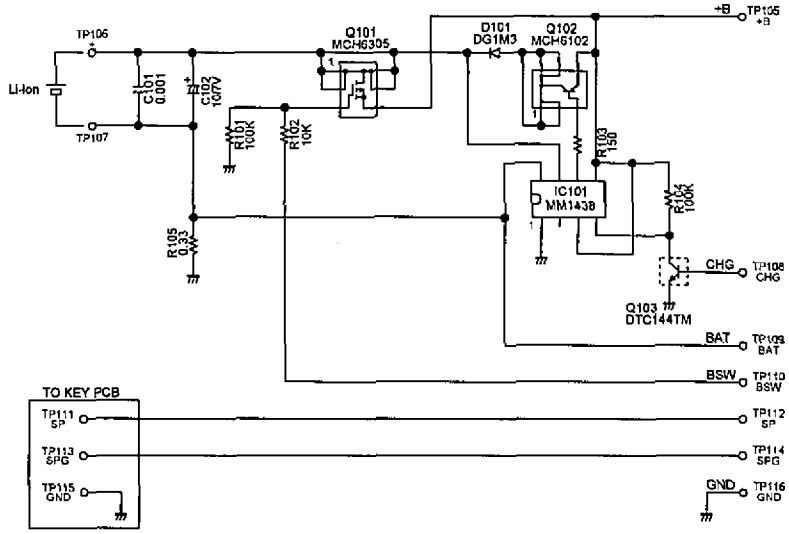
CN201
AXK5F16545YJ
1
AFO
SCO
SCT
TIN
SCV
KV
TV
16
LUB
LMB
LDB
RUB
RDB
LMP
R208 1K
R209 1K
R211 1K
R216 1K
R217 1K
SW201 SKQGAA
SW202 SKQGAA
SW203 SKQGAA
SW204 SKQGAA
SW205 SKQGAA
D202 SML-A10MT
D203 SML-A10MT
D204 SML-A10MT
D205 NC
D206 NC
R213 150
R214 150
R215 150
R246 NC
R247 NC
R224 0
C211 1
C213 NC
R244 NC
R228 33K
R227 10K
C214 0.01
C217 1
R245 0
R232 390K
C218 1
IC203 NJM2904V
R233 0
VR201 100K
C224 1
C205 1
R235 100K
R234 330K
R236 1M
C219 0.01
C221 22/4V
IC204 NJM2594V
V+ NC
OUT1 CIN
OUT2BYPS
GND SIN
R240 NC
C220 0.01
R237 220K
R238 15K
R239 15K
R242 470K
C222 1
R241 0
C223 0.0056
R243 1.8K
C225 22/4V

KEY UNIT (X7T)

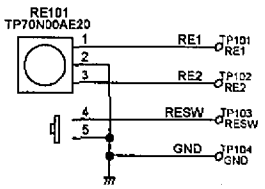

CN201
AXK5F16545YJ
D201
DAN222M
IC201
IC202
NJM2904V
IC203
IC204
VR201
SW201
SW202
SW203
SW204
SW205
D202
D203
D204
D205
D206
SML-A10MT
TO KEY PCB
TO SP
TP201
TP202
TP203
TP204
TP205
SP
SPG
GND

SCHEMATIC DIAGRAM

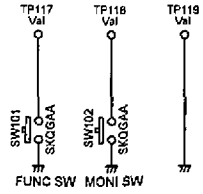
BATT UNIT

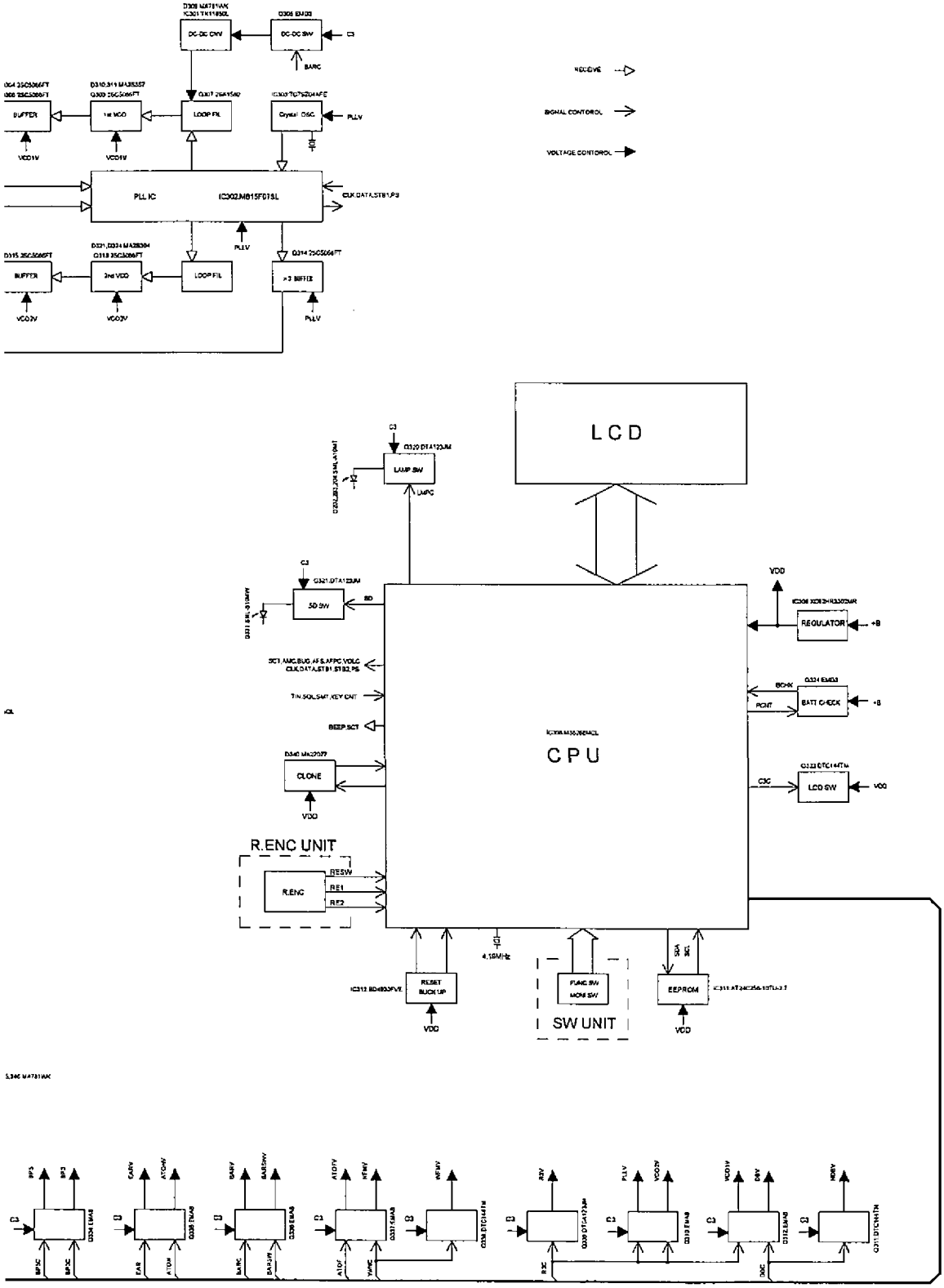


RENC UNIT



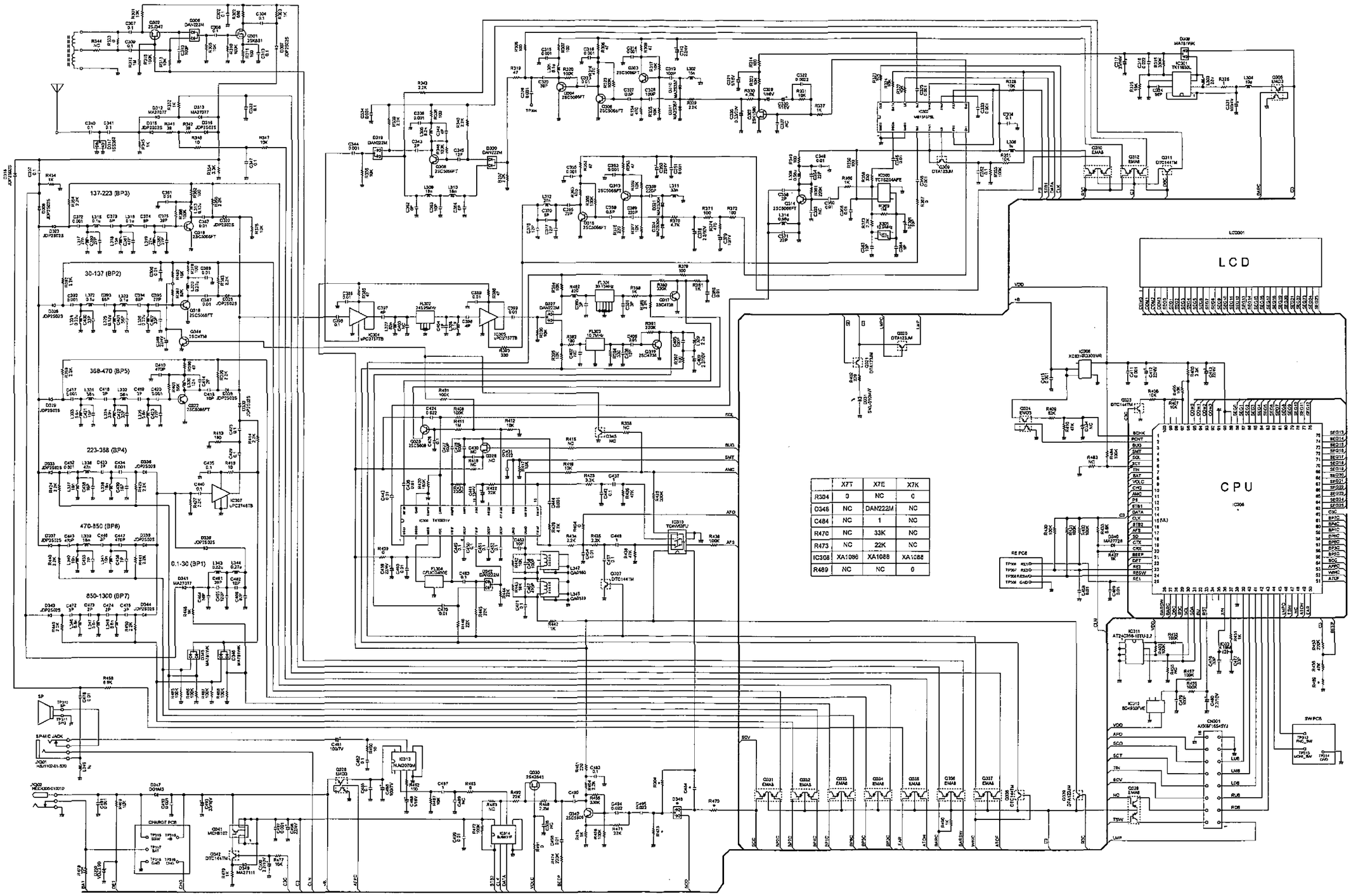
SW UNIT



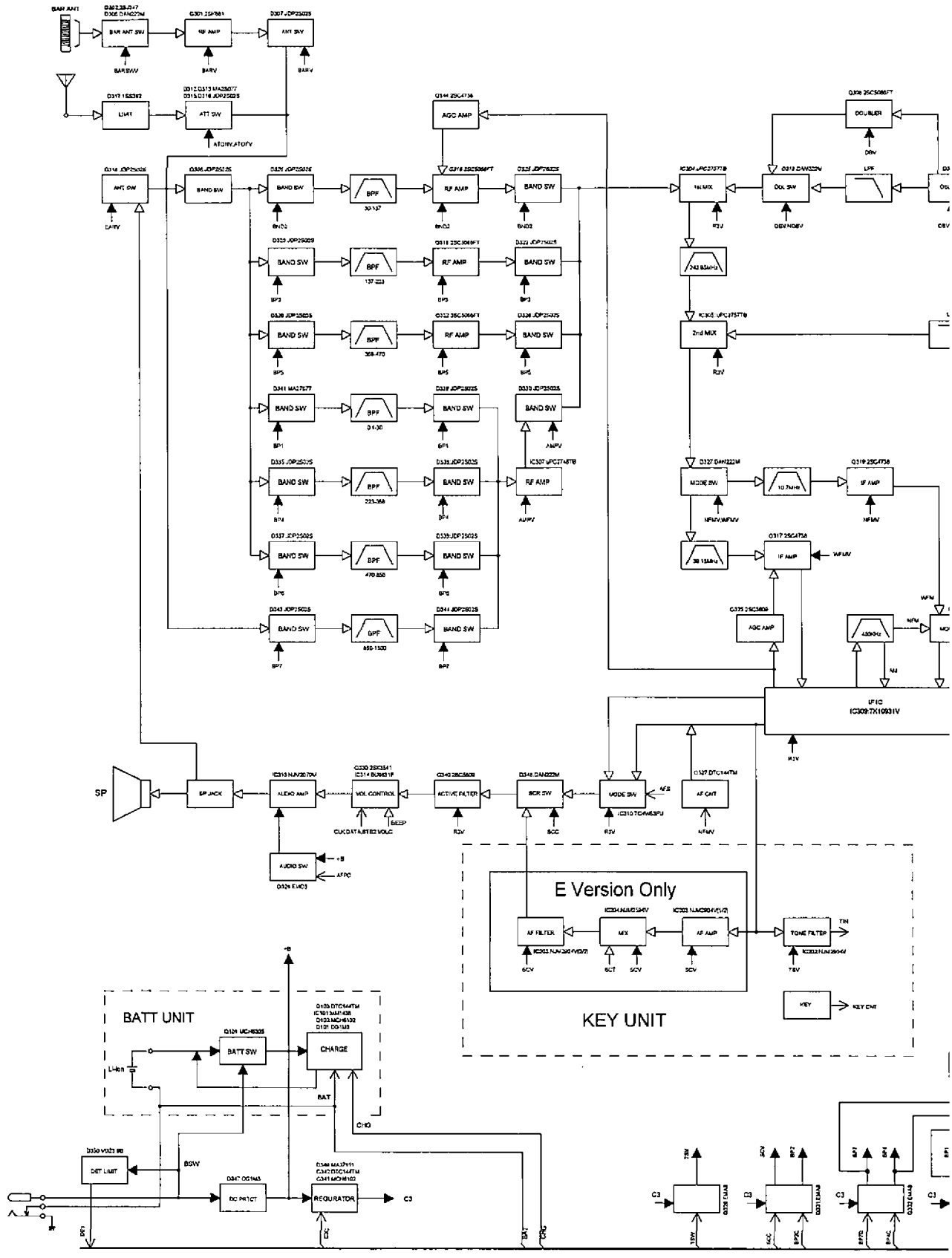


DC-DC CNV
DC-DC SW
BARC
BUFFER
1st VCO
LOOP FIL
Crystal OSC
PLLV
VCO1V
PLL IC
IC302,MB15F07SL
CLK,DATA,STB1,PS
2nd VCO
x3 BUFFER
VCO2V
RECEIVE
SIGNAL CONTOROL
VOLTAGE CONTOROL
LCD
LAMP SW
LMPC
5D SW
SD
VDD
REGULATOR
+B
BATT CHECK
PCNT
CLONE
CPU
LCD SW
C3C
R.ENC UNIT
R.ENC
RESW
RE1
RE2
4.19MHz
RESET BUCK UP
FUNC SW
MONI SW
SW UNIT
EEPROM
SDA
SCL

MAIN UNIT



	X7T	X7E	X7K
R304	0	NC	0
D348	NC	DAN222M	NC
C484	NC	1	NC
R470	NC	33K	NC
R473	NC	22K	NC
IC308	XA1086	XA1088	XA1088
R489	NC	NC	0


BAR ANT
BAR ANT SW
RF AMP
ANT SW
LIMIT
ATT SW
AGC AMP
DOUBLER
ANT SW
BAND SW
BPF
RF AMP
1st MIX
DBL SW
LPF
2nd MIX
MODE SW
IF AMP
AGC AMP
IF IC
IC309:7X10931V
SP
SP JACK
AUDIO AMP
VOL CONTROL
ACTIVE FILTER
SCR SW
MODE SW
AF CNT
AUDIO SW
E Version Only
AF FILTER
MIX
AF AMP
TONE FILTER
KEY
KEY UNIT
BATT UNIT
BATT SW
CHARGE
DET LIMIT
DC PRTCT
REGURATOR
C3

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